The Art of

GRAVING AND ETCHING.

Wherein is expreſs'd the true way of Graving in COPPER.

Alſo the Manner and Method of the Famous *CALLOT*, and Mr. *BOSSE*, in their ſeveral ways of *Etching*.

Publiſhed by *William Faithorne*.

The Second Edition.

To which is added, the way of Printing *Copper-Plates*, and how to make the Preſs.

LONDON,
Printed for *A. Roper*, at the *Black-Boy*, over againſt St. *Dunſtan's Church* in *Fleetſtreet*, 1702.

To the Lovers of this ART.

I Have had the thoughts oft-times to Publiſh this enſuing Treatiſe of *Graving* and *Etching*, becauſe it hath arrived to ſuch an height, in theſe our latter Times, as it becomes a fit Subject for our Kingdoms Knowledge and Practice. We need no other Witneſſes to confirm this Truth, than the Works of thoſe famous Maſters, the *Sadlers*, *Goltzius*, *Bleumart*, *Mellan*, *Natalis*, *Pontius*, *Poilby*, &c. And as for *Etching*, we are obliged to that Renowned *Callot*, and his Diſciple *Boſſe*; who hath not only Practiſed, but alſo hath been ſo Courteous as to diſcover, in the *French* Tongue, this Art unto his Country Men. I have uſed him as an Author in this Work, yet I have not traced him ſo cloſely as to make it a meer Tranſlation; but added ſomething, making uſe of what I thought neceſſary:

So as (I hope) I am neither ſo tedious as to be Troubleſome, nor ſo ſhort as to be Obſcure.

I ſhall not Trouble my ſelf to ſpeak in the Commendation of this Art, but (to thoſe that may ſeem to detract from it) give me leave only to ſay thus much, that the reſult of *Ayre*, the Symetry of *Parts*, the exact harmony of *Proportions*, of *Lights* and *Shadows*, may be performed to the height in *Graving*. Therefore I Recommend it to Publick View, hoping of its fair Reception by all Lovers of Arts; which is the utmoſt Aim and Expectation of,

M. G.

An Index directing to the several Sections contained in this Book.

How

Of soft Varnish.

Here

The INDEX.

Of Graving.

THE

To the Right Worſhipfull Sir *Robert Peake* Knight.

SIR,

THe *Honour of having ſerv'd his late Majeſty (under your Conduct) in the Garriſon of* Baſing, *hath given me ſome reputation in the World, and the happineſſe of having ſerv'd your ſelf, before the Warrs, hath given me a Condition of living in it. in both, under the Regiment of your Command. you chang'd the ſteel of my Tools into Weapons, and the exerciſe of my Arts into Arms; when the ſervice of the King challenged the duty of his Subjects, you then prompted me unto Loyalty: that ſervice unhappily ending, you re-adviſed*

a returne to my imployment: the whole course of my life, having thus in some measure been an Observancy of your Directions; to whom should I dedicate the Issues of my Labours in it, but to you: and having now to present my Countrey with something of use, profit, and delight, take occasion by these to speake my gratitude, and preserve to my self the honour of continuing what I have been,

Sir,
Your humble and
devoted servant,

William Faithorne.

To the Lovers of this Art.

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W. F.

To my ingenious Friend Mr. *Faithorne* on his Book.

SHould I attempt an Elogy, or frame
A Paper Structure to secure thy Name:
The lightning of one censure, one stern frown
Might quickly hazard that, and thy renown.
But this thy Book prevents my slender pain,
One Line speaks purelier Thee, than my best strain.
Those Mysteries (once like the spightfull mold
That bars the greedie Spaniard *from his Gold)*
Thine ingenuitie reveals, and so
By making plain, thou dost Illustrious grow.
That hand, whose curious Art protracts the date
Of frail Mortalitie, and baffles Fate
With Brass and Steel, can surelie potent be
To rear a statelie Monument for Thee.
For my part, I prefer (to guard the Dead)
A Copper Plate, before a sheet of Lead.
So long as Brasse, so long as Books endure,
So long as neat-wrought Pieces, Thou'rt secure,
A Faithorne *sculpsit is a Charm can save*
From dull Oblivion, and a gaping Grave.

T. Flatman.

An Index directing to the ſeveral Sections contained in this Book.

How

Of ſoft Varniſh.

Of Graving.

FINIS.

The Art of Graving.

with *Aqua fortis.*

Sect. 1. *How to make the hard Varnish for engraving with* Aqua fortis.

TAke five ounces of Greek pitch, or (for want of that) Burgundy pitch, five ounces of Rozin of Tyre, or *Colofonium*, or for want of that) ordinary Rosine: Melt them together upon a gentle fire in a new earthen pot, well varnished, or leaded, and being very clean: These two things being first melted, and well mixt together, put into them four ounces of the best Nut Oyl; mix them well together upon the same fire the space of a full half hour, and let them boyl well; Then let this mixture cool a little upon a softer fire; and afterwards, touching it with the end of your finger, it will rope (if it be boyled enough) like a glewy Syrup. Then take the pot from the fire, and (the varnish being a little more cooled) strein it through a fine Linnen cloth, or Taffata, into a well varnished earthen pot; or else put it into any thick glasse bottle, or any other thing that will not drink it up, and stop it well. Varnish thus made will last twenty years, and it will be the better the longer it is kept.

It is reported of *Monsieur Callot*, that he had his varnish sent him ready made from *Italy*, which was made there by the Joyners, who used it to var-

nish their work: They called it *Vernice grosso de Lignaioly*: He gave some to the Author, which he used a long time; but since made use of the varnish whereof you have a description before.

Sect. 2. *How to make the composition or mixture of grease and oyl, to cover those places in your plate, where you would not have the* Aqua fortis *to eat in.*

TAke an earthen porrenger well leaded; put into it a quantity of Sallad oyl, and set it on the fire, and when the oyl is hot, put into it a quantity of Candles-grease; when that is melted, take a pencil and dip it in, and let a drop or two fall on a plate, or any cold hard thing; and if the drops be a little hardened and firm, it sheweth that the mixture is well made. For you may judge, that if it is too liquid, it is because there is too much oyl; and if so, then you must put in more grease; and by the same reason, if it be too hard, you must put in more oyl: having made it in this manner, boyl it well the space of an hour, that the oyl and the grease may be well mixed together, and that you may perceive them of a reddish colour, otherwise they will be apt to separate, when you should use them.

The reason why you melt the oyl, and the grease together, is to make the grease more liquid, and not cool too fast: for should you melt the grease alone, you shall no sooner take it up with the point of your pencil to carry it to the place where you would use it, but it will grow cold.

Put in a greater quantity of oyl in Winter, then in Summer.

Sect. 3. *How to prepare the Ingredients for making the* Aqua fortis *for the hard varnish.*

THe *Aqua fortis* is made of Vinegar, Salt Armoniack, Bay-salt, and Vert de griz.

The Vinegar must be of the best sort of white-wine Vinegar; but if it be distilled, it is the better, and not so subject to break up the varnish.

The Salt Armoniack must be clear, transparent, white, pure, and clean.

The Bay-salt must be also pure and clean.

The Vert de griz must be clean, and free from any scrapings of brasse.

The Salt Armoniack and Vert de griz are commonly sold at the Druggists.

Sect. 4. *How to make this* Aqua fortis.

TAke three pints of Vinegar, six ounces of Salt Armoniack, six ounces of Bay salt, and four ounces of Vert de griz; or of each according to this proportion, as you will make your quantity more or lesse: put them all together in an earthen pot well varnished, large enough, that it may not boyl over: Coven the pot, and put it on a quick fire, and let it speedily boyl two or three great walmes and no more: When you perceive it ready to boyl, and not before, uncover the pot, and stirre it with a little stick sometimes, and take heed that it do not boil over: Having thus boyled it two or three great walmes, take off the pot from the fire, and let it cool; but keep the pot covered, and

when it is cold poure it into a glaſſe bottle, and let it ſtand ſtopped a day or two before you uſe it: and if you ſhall find it too ſtrong in the etching, poure into it a glaſſe or two of the ſame Vinegar you made it of.

Sect. 5. *How to know good Copper from bad.*

COpper is beſt for graving with a Graver, or *Aqua fortis*; Braſſe is too brittle. That Copper is beſt which is free from flaws, and not too hard, which you may perceive by its yellowiſh colour, almoſt like braſſe: & if it be too ſoft, you may ſomewhat perceiv it by its too much pliableneſs in bending. When you are to make uſe of it, you ſhall perceive (in that which is good) a firm, yet eaſie force in the entring of your graver: and that Copper which is beſt for graving, is alſo beſt for etching.

Sect. 6. *How to planiſh and poliſh your Plate.*

HEre in *England* you muſt buy your Copper ready forged from the Braſiers.

It is not neceſſary, that they which deſire to engrave ſhould forge and poliſh their Copper themſelves; but becauſe in divers places there is not conveniency of having it ready poliſhed, I have thought fit to ſet down the manner how it may be done.

Thoſe Plates which you intend to forge and planiſh,

niſh, muſt be fully as thick as an half-crown, becauſe in their forgeing and planiſhing they will become ſomewhat thinner. You muſt planiſh your Copper cold, as the Silver-Smiths do their Plate: And the more it is beaten or planiſhed with an hammer, the firmer it is, and leſſe ſubject to holes or flaws.

Your Plate being well planiſhed, make choice of the ſmootheſt ſide for poliſhing: Before you begin to poliſh it, fix it upon a board; and when you poliſh it, let your board (to which the plate is fixed) ſtand a little declining or ſloping.

To poliſh your Plate, take a piece of a Grinding-ſtone about the bigneſſe of your fiſt, and fair water, and rub it firmly, and evenly all over; and in your rubbing throw water often on it, and continue ſo doing, till you cannot perceive any dints, or flaws, or marks of the hammer: Then waſh it clean with water: Afterward take a good Pumice-ſtone, and rub the ſame Plate with it and water, till there appear none of the rough ſtroaks, or marks of the ſtone: Then waſh it clean with water, as you did before.

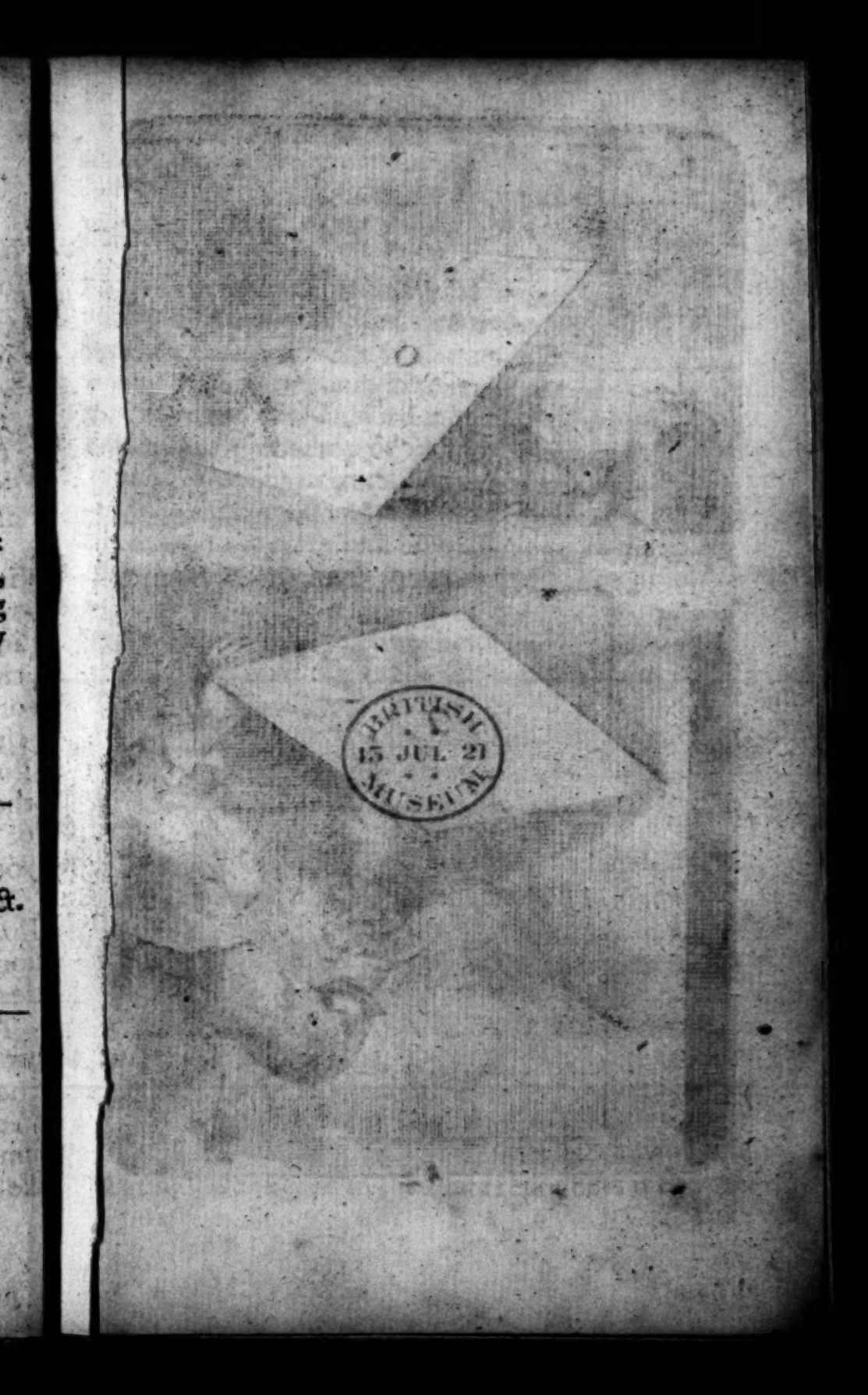
Again, do the ſame thing with a fine ſmooth Hoan and water, till all the marks of the Pumice-ſtone are quite rubbed out: This done, waſh it clean with fair water.

Then chooſe out a Chark-cole ſmooth, without any knots, or rough grain, and put it in a well-kindled fire; let it be there, till you may perceive it red hot; Then take it out of the fire, and immediately quench it in cold water; Then take it out, and pair off the uttermoſt rind, and

rub your Plate with it, and water, till all the ſmall ſtrokes of the Hone be rubbed out: If the cole be naught, it will only ſlide upon the Plate, and not rub out the ſtrokes.

After you have thus poliſhed it with a Chark-cole, if you perceive any ſmall ſtroaks, or ſcratches on your Plate, then take a well-hardened piece of ſteel, made ſomewhat roundiſh at the end, which is commonly called a burniſher; and with it rub thoſe places firmly and evenly, where you perceive any ſtrokes, or ſcratches. When you have done this, waſh it clean, and dry it by the fire: and if by any accident your Plate be foul or greaſie, take the crummes of ſtale bread, or fine-powdered Chalk, and rub your Plate over with it: The Plate being thus poliſhed and cleanſed, is fitly prepared to lay on your Varniſh.

Sect.



Sect. 7. *How to apply your hard Varnish on the Plate, and make it black.*

TAke your Plate thus cleanſed, and lay it on a chafing-diſh with a little fire in it, and when it is indifferently hot, take it away, and take up ſome of the Varniſh with a little ſtick, and put a drop of it on the top of one of your fingers; then lightly touch the plate with the top of your finger in ſeverall places at equall diſtances; as the uppermoſt figure in the plate ſheweth you, the ſame being marked with the letter O: and lay no more on one place then on another. And if your plate grow cold, heat it again as before, being very carefull to keep it from duſt or filth. This done (having well-wiped the fleſhy part of the palm of your hand) tap it upon the Plate, till all the little ſpots of varniſh are equally ſpread upon the Plate.

After this tapping, wipe or ſlide your hand upon the Varniſh, to make it more ſmooth, and equal: Take great care, that there be not too much Varniſh upon the plate, and that your hand be not ſweaty; becauſe the ſweat mixing with the Varniſh, wil cauſe little bubbles, when it is applied to the fire, which will become little holes in the Varniſh.

Your Varniſh being thus ſmoothed upon the Plate, the way to black it is thus. Take a great tallow-candle lighted, which burneth clear; let it have but a ſhort ſnuff; then place the corner of your plate againſt the wall, with the varniſhed ſide downward, as the lower figure in the Plate repreſents it to you.

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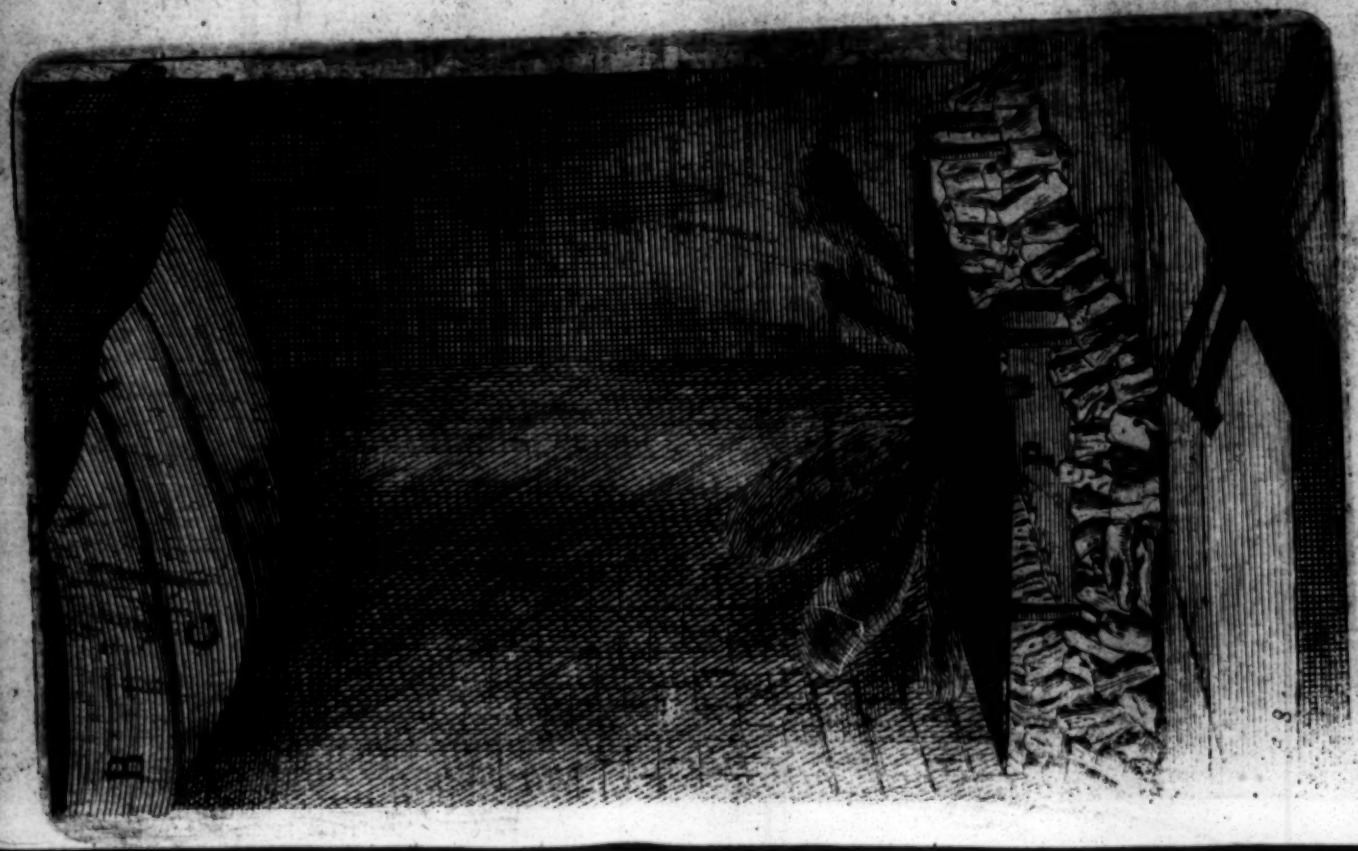
Take heed that your fingers do not touch the Varniſh: then take your candle, and apply the flame to the Varniſh, as cloſe as you can without touching the Varniſh with the ſnuffe of the candle: guide the flame all over, till you ſee it perfectly black; keep it then from duſt or filth untill it be dried.

Plate 1, 2.

Sect. 8.



Sect. 8. *How to dry, or harden the Varniſh upon the Plate.*

KIndle a fire in a chimney of ſuch chark-coles as are not ſubject to ſparkling, and when they are well kindled, range them in a ſquare ſomewhat larger than the Plate, as the letter P ſheweth you. Before you place your plate to be dried, hang up a cloth in the chimney to hinder and keep off any ſoot or filth from falling down upon it, as you may ſee by the letters B C D. Then take your plate and place it in the middle of the range upon two low Andirons, as the letter O directs: this done, you will ſoon perceive the Varniſh to ſmoke; and when you perceive the ſmoke begins to abate, then take off the plate from the Andirons, and with a ſtick pointed ſcratch near the ſide of your plate; and if it eaſily take off the Varniſh, then you muſt lay it again upon the Andirons for a little ſpace: Then take it off, and touch it again with your pointed ſtick, and if it take off the Varniſh not too eaſily, then immediately take it from the fire and let it cool.

If the Varniſh do much reſiſt the point of the ſtick, then preſently throw on ſome cold water on the back-ſide of the plate to cool it, ſo that the heat of the plate may not cauſe the Varniſh to be too hard and brittle.

Sect. 9.

Sect. 9. *How to choose your needles wherewith to make your tools to etch with.* Pl. 3.

CHoose some broken needles of severall sizes and bigness, such as break neat without bending, and of a fine grain. Then take round sticks of a good firm wood, not apt to split, of the length of half a foot or somewhat lesse, of the thickness of a good large quill: at the ends of which sticks fix in your needles, so that they stand out of the sticks about as much as you see in the figure following.

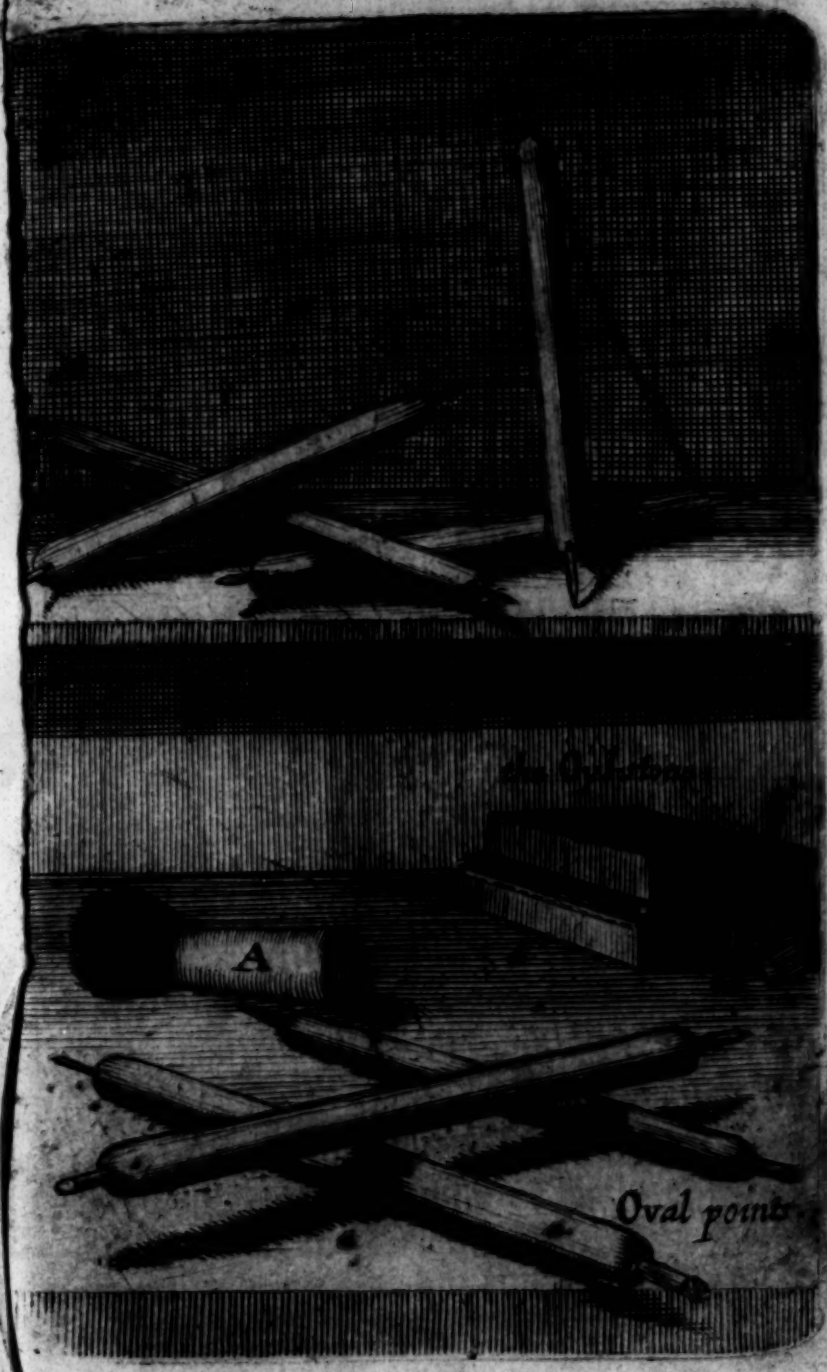
Sect. 10. *How to whet the points of your needles.*

THere are two wayes of whetting your needles, the one round, the other sloping.

You must have an oyl stone with a fine grain to whet your needles upon. For those you would have to be round, you must upon the oyl-stone whet their points short, not as your sowing needles are, but as the Figure shews you. For the other which you intend to make sloping, first upon the oyl-stone make it blunt, then holding it firm and steddily, whet it sloping upon one side only, till it come to a short roundish Oval, for the long Oval is not so good to work with.

You will need a soft brush-pencill, to brush off the varnish, which you work off with the strokes of your needle, as is represented by the Letter A.

Sect. 11.


A
Oval points

Sect. 11. *To preſerve your Varniſh upon the plate.*

YOur plate being varniſhed, place it upon a low desk or ſuch like thing, and cover that part which you do not work one with a ſheet of fine white paper, and over that a ſheet of brown paper, whereon you reſt your hand to keep it from the varniſh when you work.

When you have occaſion to uſe your Ruler to draw ſtreight lines, lay ſome part of it upon the paper, that it may not rub off the varniſh. But above all things have an eſpeciall care that no filth or duſt gets in between the paper and the varniſh, for that will cauſe ſome holes and ſcratches in the varniſh.

Sect. 12. *How to etch.*

IN etching you will have occaſion to make divers ſorts of lines or hatches, ſome bigger, ſome ſmaller, ſome ſtreight, ſome crooked. To make theſe you muſt uſe ſeverall ſorts of needles, bigger or ſmaller as the work requires. The great lines are made theſe three ſeverall wayes,

1. By leaning harder on the needle, and the point being ſhort and thick makes a larger paſſage; but the point being round it will not cut the varniſh clear.

2. By making divers lines or hatches, very cloſe one to another, and then by paſſing them over again with a thicker needle; but this way is both too tedious and withall very difficult.

3. By making the lines with an indifferent bigg needle,

needle, and letting the *Aqua fortis* lie the longer on it. Thoſe needles which you whet ſloping with an Oval, are the beſt to make the large lines withall, becauſe with their ſides they cut that which the round points cannot. Pl. 4.

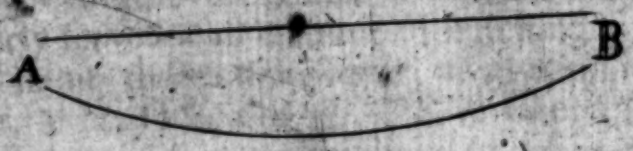
Sect. 13. *How to guide your needles upon the plate.*

YOu may perceive from what is ſaid, that thoſe points which you intend to make uſe of, in graving with *Aqua fortis*, ought to be whet exactly round, that they may turn more freely upon the plate. Some of thoſe round points muſt be whet very ſharp, that they may cut the varniſh and copper more eaſily. If you find that your point cuts not freely and ſmoothly, 'tis becauſe it is not whet exactly round.

If you have occaſion to make your lines or hatches of an equall bigneſſe from one end to the other, whether they be ſtreight or crooked, as thoſe two lines in the letters A B repreſents, you muſt, as reaſon will tell you, lean on your point with an equall force from one end to the other.

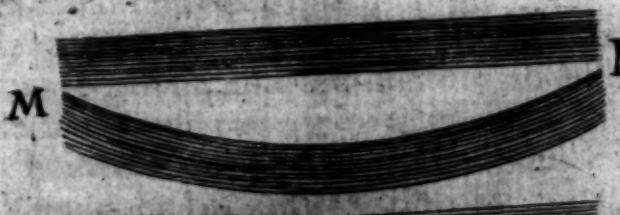
If you would make your ſtrokes thicker at one end then at the other; as the ſecond letters A B ſhews you, then you muſt lean on your point with your hand harder at the beginning, and by degrees lighter and lighter towards the end.

If you would have your ſtrokes to be ſuch as are repreſented in the third figure marked alſo a b, that is to ſay, larger in the middle then at either end, you muſt lean gently at the beginning, & then by degrees harder and harder till you come to the middle, and then


A
B


a
b


a
b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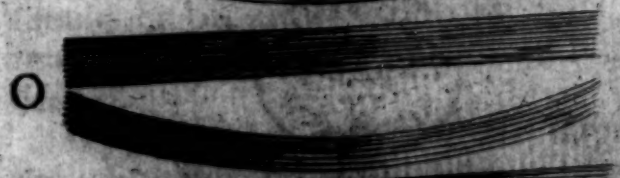
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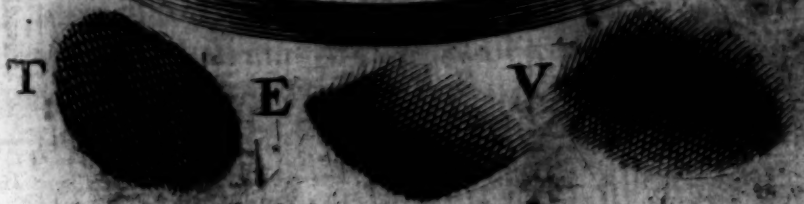
T
E
V


BRITISH
13 JUL 21
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then by degrees lighter and lighter till you come to the end.

These three sorts of lines or hatches may indifferently serve for all manner of hatching your shadows in any design whatsoever, as appears in the figures, M N. O P. Q G R. T E V. wherein is manifest, that the shadowing is but a reiteration of the same strokes close one to another.

If you desire that your etching with *Aqua fortis* should look as like graving as may be, you must lean hard upon your needle in those places where you would have the lines appear deep and large, that is, so hard that the needle may make some impression in the copper. And by the same reason you are to lean very light on those places which you would have appear faint and small.

If it happen that you have made some lines or hatches too small, and are desirous to enlarge your stroke, you must passe it over again with a round short point, of such a thickness as you desire your line should be of, and lean strong and firmly on those parts of the line which you would have large and deep.

If at any time, by reason of the large lines or hatches, which you were to make, you have used an Oval point (which is the best to cut the varnish) you must afterwards, with one of your large needles whetted short and round, passe in the midst of the said stroke firm and strongly, but especially in those places which you would have large and deep.

Sect. 14. *How to use the Oval points to make large strok in etching or graving with* Aqua fortis. Pl. 5.

YOu may see in the figure A B C D the form o those Oval points, and that part next to C de scribes the end of it, and B D the sides. The man ner of holding it is much after the manner of hold ing a pen, only the flat side whetted is usually held towards the thumb, as is represented in figure iii Not but that it may be used otherwise, with the face of the Oval turned towards the midle-finger, as it is shewn in Fig. iv. but I have found the other manner to be much better, because that way you may more firmly and with more strength inforce your strokes.

Now to shew you how to make your strokes large and deep, and that these Oval points are the most proper for it, take notice of the two upper first and second figures, which are made the larger purposely, that you may the better apprehend what shall be hereafter spoken of it. Your own reason will tell you, that if you lean lightly in making your strokes, those strokes will accordingly be lesse deep, smaller, and more faint; for the harder you lean, the deeper and larger your strokes will be. Of this you have an example in the third figure marked r n s; where leaning lightly at the beginning, *viz.* r. and then harder by degrees to n. and afterwards lighter by degrees to s. you make your stroke bigger or smaller according to your leaning on it, as you find represented in the said third Figure.

But if you would have your strokes come very small and delicate at the end, then with the point of your

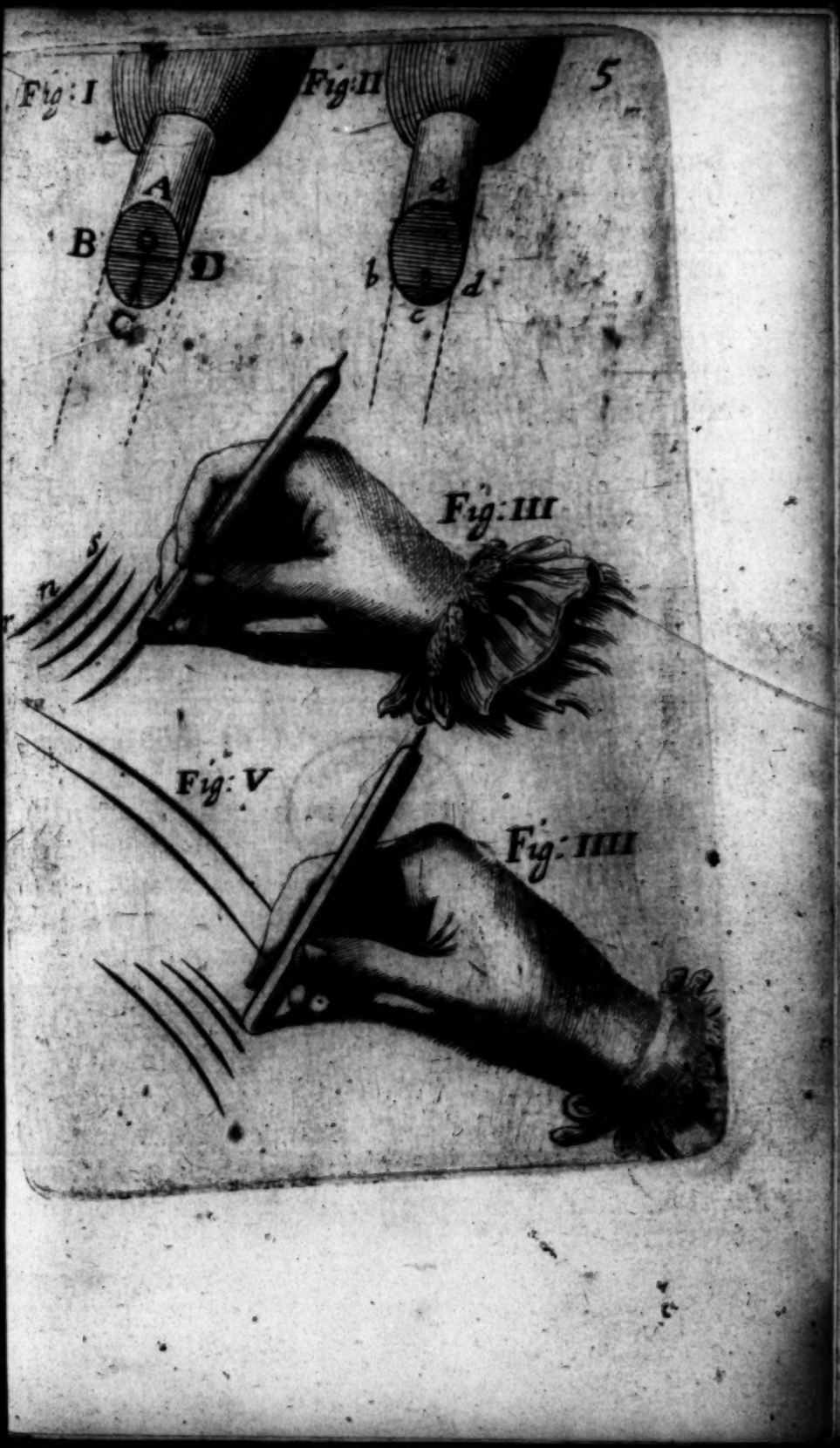
Fig: I
Fig: II
5
A
B
D
C
a
b
c
d
Fig: III
n
s
Fig: V
Fig: IIII


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your ſmall needle lengthen out your ſtroke, as you find it repreſented in the two ſtrokes of the fifth Figure.

Some will firſt make their ſtroke with a round needle, and then paſte it over again with an Oval point to inlarge it in thoſe places which they would have deeper and bigger; but the other is the better way.

They that know how to grave after they have done etching their lines with *Aqua fortis*, may with the aſſiſtance of their graver make them more neat and deeper.

I ſhall only think it not amiſſe to adviſe you by the way, that in making your ſtrokes with your Oval points, you muſt hold them as upright and ſtreight in your hand as you can, and accuſtome your ſelf to ſtrike your ſtrokes firm and bold, for that will contribute very much to their neatneſſe and clearneſſe. To do this the better, you muſt be very carefull to have your points alwayes well whetted.

In thoſe places which you would have appear in your piece by way of Landskip, that is at the furtheſt diſtance from the ſight, as alſo in thoſe places which approach neareſt the light, you muſt uſe a very ſlender point, leaning ſo lightly with your hand, as to make a ſmall faint ſtroke. But when you come to thoſe places which you would have more ſhadowed, lean ſo much the harder, as that when you come to eat it in with your *Aqua fortis*, you may cover moſt of your faint places at one and the ſame time, for you muſt know that thoſe ſtrokes, which you lean lighteſt on, do little more then raiſe up the varniſh. So that

when

when you ſhall apply your *Aqua fortis* to etch it, it will appear much fainter then in thoſe places where you have leaned with greater force, though the ſtrokes are done with one and the ſame needle. Inſomuch, that when you ſhall have cover'd the greateſt part of your faint places with your mixture, thoſe places, whereon you lean'd more ſtrongly, will appear deepeſt, though they were all covered at the ſame time. In your working be carefull to bruſh off all the duſt which you work off with your needles.

Sect. 15, *How to prepare your plate to receive the* Aqua fortis.

YOur plate being finiſhed and ready for the *Aqua fortis*, bruſh off all the rubbidge and duſt that is in the ſtrokes. And if there happen to be any ſtrokes which you would not have the *Aqua fortis* eat into, or any places where the varniſh is rubb'd off, then melt your mixture of oil and greaſe which you have made, and with a pencill, bigger or ſmaller, according to the proportion of thoſe places which you would mend, cover thoſe places indifferently thick, and the *Aqua fortis* will not eat in.

This done, take a bruſh or pencill, or ragg, and dip it into the ſaid mixture of oil and greaſe, and rub the back-ſide of your plate all over, to prevent the *Aqua fortis* from eating any part of it; but take heed that your mixture be not too thin or liquid, for if it be, when you caſt your *Aqua fortis* on the plate, it will force it from thoſe places whereto you had applied it.

When I find my mixture begin to grow cold, I com-

monly uſe to put ſome ſmall quantity of it on my left hand, thereby to keep it warm, to be uſed as occaſion ſhall require.

In the winter time, eſpecially when the weather is cold and moiſt, before you apply your *Aqua fortis* to the plate, it will not be amiſſe to warm it gently by the fire, to dry up the moiſture, which the plate is ſubject to by reaſon of the diſtemperature of the weather. Nay if it be not warmed, it may haply endanger the breaking up of the varniſh, upon the firſt pouring of the *Aqua fortis* upon the plate.

Sect. 16. *How to make your trough and frame to hold your plate when you would powre the* Aqua fortis *on it.*

THe Figure oppoſite hereto repreſents both trough and frame. The letter A is one intire piece of Elm or Oak, of about four inches thick and ſix inches broad, and may be of ſuch a length as you ſhall think fitteſt for your uſe. You muſt cut this piece of wood into the faſhion of a trough, as the figure ſheweh you, making it a little deeper in the middle, that the water running thither may fall through a hole there made for that purpoſe. Set this upon a Treſſel with four leggs as the figure ſhews you.

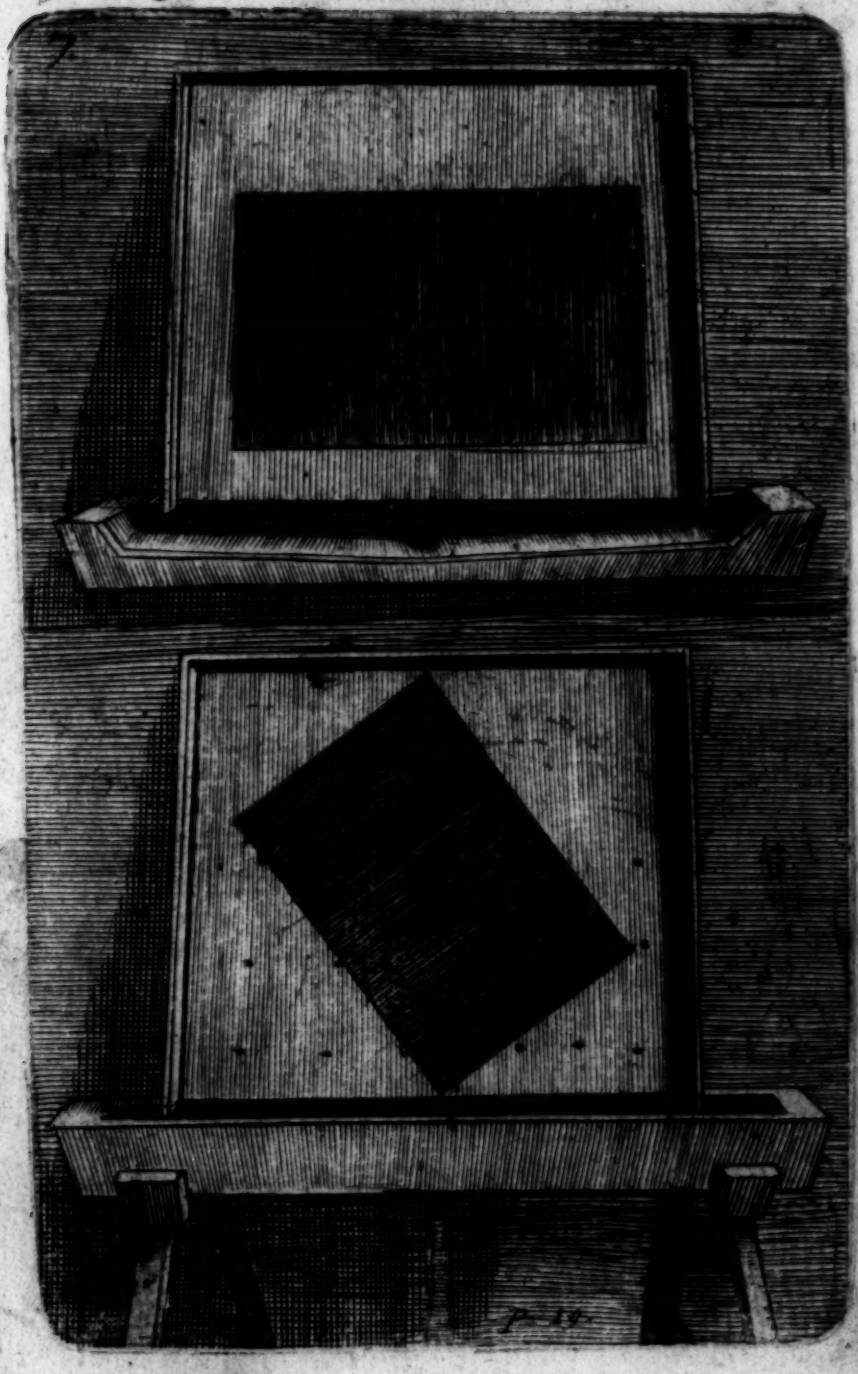
Under the hole in the trough, place an earthen pan well leaded on the inſide, as you ſee in the figure B; and therein put your *Aqua fortis*, let it not ſtand too much below the trough.

The figure M N O P is one intire board of an indifferent largeneſſe as you may judge by the figure. About the two ſides and top of which board you muſt faſten a ledge about two inches broad, to keep the *Aqua fortis* from running off from the ſides, when you poure it on. The inſide of this board and trough muſt be covered or primed over with a thick oil-colour, to hinder the *Aqua fortis* from eating or rotting the board. Place the lower end of this board in the trough leaning ſloping againſt a wall or any other thing. In the board you muſt fix ſeverall peggs of wood or nails whereon to reſt your plate.

The

How to poure y^e Aqua Fortis upon y^e Plate.

p. 18.



The figure Q describes a little earthen pot well leaded on both sides, which you must have to take up your *Aqua fortis* out of the panne, and to pour it on the plate.

Sect. 17. *The manner of casting the* Aqua fortis *upon the plate; as also how to cover the places, that are fainteſt and moſt remote from the eye, with the forementioned mixture, as occaſion ſhall require.*

HAving obſerv'd the way of placing the plate for the receiving of the *Aqua fortis*, there remains only to conſider the method you are to follow in caſting it on as occaſion ſhall require; for in ſome works it will be neceſſary to caſt it on ſeverall times, for the reaſons hereafter to be mentioned. Having a ſufficient quantity of *Aqua fortis* in your pan, fill your earthen pot, and poure it upon your plate, beginning at the top, and moving your hand equally ſo that it may run all over the plate, taking great heed that the pot touch not the plate. Having ſo pour'd 8. or 10. times, the plate being as in the poſture expreſs'd in the precedent figure, you muſt turn it croſſe-wayes, as is repreſented in the upper part of the following figure marked C, and poure on it as it lies that way ten or twelve times as before: That done, turn your plate ſuitably to the poſture expreſs'd by the lower part of the following figure aforeſaid, that is to ſay, corner-wiſe, and as it lies ſo, poure thereon eight or ten times; pouring the *Aqua fortis* thus at ſeverall times, for the ſpace of half a quarter of an hour, more or leſſe, according to the ſtrength of the water, and nature of the copper.

For if the copper be brittle and hard, there muſt be the leſſe time allow'd for the pouring on of the water; but if ſoft, the more.

And whereas you may not haply at the firſt be ſo well aſſured of the ſtrength of your water, and the preciſe quality of your copper, it will not be amiſſe to give you ſome directions how to know both, that you may proceed according to the ſtrength or neatneſſe which you expect to find in your work. For there are ſome pieces require more force, and ſome more tenderneſſe then others. To know therefore the nature of your copper, and the ſtrength of your water, that they be ſuch as the work you intend doth require, pour of it on your plate, for the firſt time, as is before mention'd, for the ſpace of the fourth part of a quarter of an hour. Then take away the plate, and caſt on it a quantity of fair water, holding the pot at a good height from the plate, to waſh off the *Aqua fortis*; for if it be not clean waſh'd, the work will appear green, and conſequently, you cannot ſo well perceive the operation of your *Aqua fortis*.

That done, hold your plate before the fire, at ſuch a diſtance, as that, without melting the mixture which may be upon it, the fair water may be dried up. Then take a little piece of charcole, and therewith rub off the varniſh in ſome place where the ſtrokes are faint: and if you find that the *Aqua fortis* hath eaten deep enough in thoſe faint places, melt your mixture, and having plac'd your plate upon a desk or eaſell, take of the ſaid mixture with a pencill fit for your work, and cover therewith all thoſe places which you deſire ſhould be tender, and

free from any further operation of the *Aqua fortis*, taking great care that you beſtow mixture thick enough on the places which you would have covered, that is, that the mixture may fill up the ſtrokes. And it is at this firſt operation, that you are to cover all the fainteſt and ſweeteſt places.

Having held your plate ſo long to the fire that the moiſture is quite taken off (a thing only neceſſary in the winter time) put it again upon your board, and pour on your water as before, for the ſpace of about half an hour, turning your plate from time to time according to the ſeverall poſtures, as is before expreſſed. That done, waſh off the *Aqua fortis* with fair water as before, and dry your plate by the fire, taking eſpeciall care that you melt not the mixture which you had before put upon it.

Your plate being dri'd put it upon the desk or eaſell, as before, and having melted your mixture, cover therewith thoſe faint places and hatches that are next in point of faintneſſe to thoſe that you had covered before. The ſeverall degrees of faint neſſe in the hatches you have ſeverall examples of in the following figure.

You have been directed before how to guide your needles and Ovall points, and I have told you how you were to lean ſtrong and firmly on the places where you would have the ſtrokes to be black and deep, and ſlack and lighten your hand where you would have them faint and tender, a thing which very much facilitates the operation of the *Aqua fortis*. For inſtance, when you have at the firſt time with your mixture cover'd that part which is enclos'd by the line A B C D. which makes a kind of

an Oval: you come at the ſecond time to cover that ſpace which is between the line A B C: and the line E O F. conceiving well, that having ſuffered the *Aqua fortis* to eat in for the time requiſite, it will have an effect ſomewhat near that which you expected.

At the upper end of the plate you have the form of a woman's arm, wherein you may perceive, by the line marked a b c d; as alſo by the other which lies yet nearer the ſhadow, how the ſmall hatches and fainter places are ordinarily covered at two ſeverall operations, as occaſion ſhall require; though in the forementioned example of the arm, one time covering might haply ſerve.

I have alſo thought fit at the bottome of the plate, to ſet down four ſeverall pieces of ground in landskip, the firſt marked m m m, is the firſt covered, as being the fartheſt of all from the eye, then at another operation that marked n n n; then that marked o o o: there being only that marked p, wherein the *Aqua fortis* eats in full and deep.

It may be objected, that the light or hard leaning on the points in their proper places in working, may make the ſtrokes and hatchings ſo, as that the *Aqua fortis* may eat in anſwerably to your expectation, without the trouble of covering any places with your mixture: To this I anſwer, that the work will not altogether have that effect, but will be like the ſecond plate, which I have purpoſely made after that manner: for though you can lean harder on ſome places, and lighter on others; yet the *Aqua fortis* being pour'd equally all over the plate, during the whole time, it muſt follow that ſome


8
a
b
c
d
E
A
P. 22
D
B
C
F
m
m
q

places will not be ſo ſweet and tender as they ought, and ſhall come farre ſhort of that beautifull and lively continuity which you may perceive in thoſe lines and ſtrokes where you uſe the mixture.

If it happen, that when you dry your plate by the fire to take off the moiſture, as hath been ſaid before, that the mixture for want of care, do melt and run into thoſe hatches and ſtrokes where you would have the water to eat in further; wipe the place with a ſoft cloth, then take the crum of ſtale bread, and rub the place therewith till ſuch time as you conceive you have taken off all the greaſineſſe. This remedy is only appliable in point of extremity; for you are to note, that it is impoſſible to take out the greaſe ſo clearly, but that it will ſomewhat hinder the operation of the *Aqua fortis*. And therefore there muſt be the more care taken to prevent it.

Having thus cover'd your places as occaſion requires, for the ſecond time place your plate on the board aforeſaid, and pour on it your *Aqua fortis* for another good half hour.

That done, waſh it with water, and dry it as formerly, and cover the places you think requires it for the third time, for you muſt know that the faint places are to be proportionable to, that is, more or leſſe, according to the ſeverall deſignes and pieces you work upon. When you have done this, pour on your *Aqua fortis* upon it for the laſt time, and it is at this operation, that you are to beſtow more or leſſe time above the precedent, according to the nature of your work.

For inſtance, if there be in your plate ſuch hatches and ſhadows as require much depth and fulneſſe, and conſequently muſt be very black, you are to pour on the *Aqua fortis* for the ſpace of an hour or better at this laſt operation alone, that is proportionably to the precedent. You may well imagine that there can be no certain rule given in generall, either as to the convenient covering of the places, or the preciſe ſpace of time that is to be obſerv'd in caſting on the water: for it is not to be conceiv'd that *Callot* pour'd as much water on his little pieces as he did on thoſe that were greater.

I told you before, how that you may rub off your varniſh or ground as occaſion requires, with a charcole, to ſee whether the water hath eaten in deep enough: you are therefore to judge of the ſpace of time that you are to employ in pouring on the *Aqua fortis*, by the works you are to do, and where I tell you that you may beſtow an hour and better on the laſt operation, my meaning is, in pieces that require much blackneſſe. All which notwithſtanding, it is to be conſidered that all copper and all ſorts of *Aqua fortis* not being of the ſame ſtrength, nature and equality, you are to proceed accordingly.

Having therefore pour'd the *Aqua fortis* upon your plate for the ſpace of an hour, more or leſſe, as the work requires as is before ſaid, waſh it again with fair water; but you ſhall not need to dry it as in the precedent operations; but put it wet as it is upon the fire, till your mixture be all melted; and then wipe it very clean on both ſides with a linnen

nen cloth, till you have quite taken away all the mixture.

Sect. 18. *How to take the ground or the varnish off the plate, after the* Aqua fortis *hath done its operation.*

TAke a char-cole of willow or some such soft grain'd wood, and take off the rinde of it, and pouring fair water on the plate, rub it with the char-cole with an even hand, as if you were to polish copper, and it will take off the varnish. Be carefull that no dust or filth fall upon the plate; as also that the char-cole be free from all knots and roughness, for it might occasion small scratches in the plate which it would be difficult to get out, especially in those places which are most faint and sweet. Note that you are not to use such a burnt cole as you do to polish withall.

When the varnish is taken off, the plate is of an unpleasant colour, by reason of the operation of the fire and water upon it. To reduce it therefore to its proper colour, take some ordinary *Aqua fortis*, to which add two third parts of fair water, and with a little linnen ragg dipp'd therein, rub your plate all over, and you will find it come to its ordinary colour and beauty.

That done, take immediately a dry linnen ragg, and wipe it all over so as to take off all the foresaid water. Then hold your plate a little to the fire, and pour on it a little sallad-oyl, and with the brims of an old beaver roll'd up, rub your plate well all over with it; then wipe it with a dry cloth.

This

This done, you will perceive plainly if there be any places that require to be touch'd with the graver, as it for the moſt part happens, eſpecially in thoſe places that are to be moſt black. For you may well judge, that when there are many ſtrokes and hatchings one cloſe to another, there is ſo little varniſh between, that the *Aqua fortis* commonly takes it off, becauſe it eats under it.

But if this happens when you caſt on your water, you may preſently cover thoſe places where you perceive the varniſh to break up with the mixture, it being much more eaſie to touch it afterwards with the graver, then when the *Aqua fortis* hath made a pit therein, which at the working of it off at the preſſe cauſes a great black patch; but after ſome number of coppies taken off, the ſaid patch ſeems to be white, becauſe there is not anything for the ink to faſten on.

Having therefore in good time cover'd that part, you have no more to do but to perfect thoſe ſtrokes and hatchings to make them more firm and beautifull; which done, your plate is ready for the Rolling Preſſe.

OF SOFT VARNISH.

Sect. 19. *How to make it, and the uſes it is to be put to.*

TAke an ounce and a half of virgins wax, the beſt and whiteſt, one ounce of Maſtick *in tears*, neat and pure, half an ounce of Spaltum; grinde the Maſtick and the Spaltum ſeverally very fine; then melt your Virgins wax in an earthen pot well leaded, and when it is very hot, ſtrew in your beaten Maſtick all over, and ſtir them together with a little ſtick till ſuch time as you may judge the Maſtick to be wel incorporated with the wax, & after that ſtrew in alſo the Spaltum, as you did the Maſtick before, and ſtirre the whole mixture together upon the fire, till the Spaltum be likewiſe well diſſolv'd and mixt with the reſt, which is likely to be done in the ſpace of half a quarter of an hour; Then take it off from the fire, and let it cool a little; Then pour in the ſaid compoſition into a baſin of fair water, and firſt wetting your hands (which muſt be very clean) in the water, take out the ſaid mixture before it be quite cold, and having well moulded it to ſqueez out the water, roll it up into pieces about an inch diameter, and two or three inches long.

You may if you pleaſe to make it the more free from any kind of filth, as you pour it into the baſin of water, paſſe it through a fine linnen cloth; but it is as well not to paſſe it through, but after it

is moulded to wrap it up in a piece of fine linnen cloth or Taffata, two or three times double, and ſo uſe it.

You are not to put in ſo much of Virgins wax in Summer as in Winter. There are ſeverall other compoſitions of ſoft varniſh that might be us'd, but this I judge to be the beſt of any that I have found.

Sect. 20. *The manner of laying your ſoft Ground or varniſh upon the plate.*

HAving your plate well poliſht, and cleanſed from greaſe, take the ſoft varniſh prepared as is before mentioned, and put the ſaid plate over a chafing-diſh wherein a moderate fire hath been kindled, and heat it in ſuch ſort, that the varniſh may eaſily diſſolve as it paſſeth through that which enwraps it: The plate being thus heated, take the varniſh cover'd as aforeſaid, and applying it by the end of the roller, ſpread it upon the plate while it is hot, carrying it lightly over from one ſide to the other, untill the plate be covered thin and equally all over: this being done, and having a quill that hath a ſmooth feather, take it, and with the broad ſide thereof ſweep it gently over the varniſh and ſwiftly, to the end it do not burn. The firſt time, the feathered end of the quill ſhall onely ſerve to ſpread the varniſh over the plate; but afterwards make choice of another, the beſt feathered quill you have, and go it over again lightly, that the varniſh may be extended very equally all over the plate and very thin;

thin; for when it is laid on too thick, your work cannot be ſo fine and delicate as otherwiſe it would; and if the plate ſhould cool, and conſequently the varniſh, you muſt heat it a little again, to the end that it may receive the varniſh as it paſſeth through the linnen. Alſo take great care, for your better eaſe in the ſpreading of it, that your plate, and by conſequence your varniſh, happen not to burn: Which that you may the more eaſily perceive, take notice, that when it is too hot it caſts it ſelf into little clots and pumples, by reaſon of over much heat of the plate.

As ſoon as you have evenly ſpread your varniſh upon your plate, black it over with the flame of a candle after the ſame manner as I have already mentioned in ſpeaking of your hard varniſh: provided only, that the flame approch not too near; this is to be done in one caſe rather then in another, and that is, when having blackt it all over, you perceive that the ſmoke hath not entred within, by reaſon of its growing cold: Therefore it will be convenient to put your plate again over your chafing-diſh, and you ſhall ſee, that as ſoon as the plate is hot, the varniſh will diſſolve; and by conſequence, the black which the ſmoke hath left upon the varniſh, will altogether pierce as farre as the plate.

Be carefull above all, in doing this, to have a moderate fire, and ſtill to remove your plate, in ſuch ſort that the ſaid varniſh melt equally all over without burning.

After that, let your plate cool, and when you ſhall think fit to work upon it, place your deſign altogether after the ſame manner, as upon your hard

varniſh

varnish, (the backside thereof being rubb'd with the dust of red chalk) excepting onely, that you must not lean so hard on with your point in drawing the out-lines of your design, lest by so doing the needle cutting through the paper should raze the varnish.

Next you proceed to work upon your plate with the same kind of points, as those which are mentioned for hard varnish, excepting those Oval points, which many that etch with soft varnish never use: Nevertheless they are very commodious, especially for the working any piece of Architecture, or making of large strokes; and it is at the choice of those that grave, either to use them or not to use them: But there is one thing to be considered, of which you are to have a very great care, and that is, how to keep the soft varnish upon the plate, for it is very apt to be rubbed or razed off, if any thing never so little violent happen to touch it: There are severall wayes of keeping it unhurt; for example, working upon the plain, or on a desk, you may have on the sides of your plate two little boards, of what bigness you please, or two little books of the same thickness, and lay another thin board upon them, so as that it may not touch the plate, and rest your hand upon this board as you work.

There are some which work with their plate laid upon a kind of Easle, as a Painter doth when he paints; but all men cannot set themselves to this manner of working, although it is very much approved of, for many reasons which hereafter shall be alledged.

To

To work upon the ſaid ſoft varniſh, you muſt handſomely place your board upon a desk, and then lay a leaf of brown or white paper upon it; ſo as it be fine and ſmooth it imports not much: Lay then your plate upon it. Afterwards take a linnen cloth without any kind of Seam, which hath been often put to other uſes, to the end it may be the more gentle and ſoft. Then double it three or four times in folds, and lay it upon your varniſh; whereon reſt your hand, as you uſe in like manner ſheets of paper upon hard varniſh: And the reaſon wherefore this caution is to be obſerved by you, is, leſt the buttons of your ſleeve ſhould rub off the varniſh.

Be very carefull, that there be no duſt or filth found upon your varniſh; if you chance to ſpie any upon your plate, wipe it lightly off with one of your large ſoft pencills, conſidering that there is much more care to be had for the preſerving of ſoft varniſh then of hard; and that was the cauſe which made the Author to leave it off, eſpecially in pieces that required long time and much pains, it being much more eaſie to make a firm winding-ſtroke upon hard varniſh then upon ſoft; for as much as the hardneſſe of the varniſh holds your point as it were engaged, which makes the ſtrokes to be the deeper, and better, imitating the firmneſſe and neatneſſe of the ſtrokes of a graver. Moreover, when you are at work in ſoft varniſh, you muſt have a ſpeciall care, leſt any other perſon then a practitioner of your Art, touch or intermeddle with your plate; and if any kind of greaſie matter happen to drop upon it, your plate

will

will be incurable: but if it ſhould chance to fall upon hard varniſh, you may then make it clean with a linnen cloth, or crumms of bread.

Thoſe that work upon ſoft varniſh, if they put their plate on a desk or eaſle, they are not in ſo much danger of rubbing off their varniſh, nor do they need ſo often to wipe away that which comes off in working; for as much as the plate being placed obliquely, the ſuperfluous matter falls away of it ſelf. I have not thought fit to make any reſemblance of it, ſince it is not likely that any of thoſe who intend to etch after this manner, can be ignorant how a Painter works upon an eaſle, there being no other difference but onely this, that a Painter uſeth a pencill, and a Graver his etching-tools. The truth is, that the Artiſt ought to reſt his plate very firm, eſpecially when he is very intent upon the making of any exact ſtrokes.

Callot wrought upon hard varniſh after the ſame manner, but it was to the end that his health might be the leſſe impaired, ſuppoſing that to ſit ſtooping to his work (though it were never ſo little) would be hurtfull to him.

Sect. 21. *How to border your plate, that it may contain your* Aqua fortis.

GEt ſoft wax, either red or green; if it be in Winter, ſoften it at the fire; in Summer it wil be ſufficiently ſoft of it ſelf: In the managing of it, put it round the brims of your plate, raiſed about half a quarter of an inch from the ſurface of the plate, being as it were a little rampart; in ſuch ſort, as that

that placing your plate very levell, and afterwards pouring your *Aqua fortis* upon it, the water may be retain'd by the means of this border of wax, so as, that the water may be equally diffused all over; but before you pour it on (to prevent its soking through between the wax and the plate) if need require, heat a little piece of Iron, and run it over on the out side where the plate closeth with the border.

Having thus bordered your plate, take common *Aqua fortis*, such as is used by the Refiners, pure and good, and mingle it with common water, being in quantity about the third part of your *Aqua fortis*; or if you have *Aqua fortis*, of which you have made former use in etching, mingle it with the pure *Aqua fortis* in stead of common water, and let the quantity be proportionable to the strength of it; then pour it gently upon the plate, in such sort as that it may remain upon it the thicknesse of half a fingers breadth all over: if you make use of the strongest *Aqua fortis*, be carefull to mingle it with the greater quantity of common water.

Then you shall see that the water will work and bubble up in those stronger hatchings that are most firmly stricken; as for those that are fainter you shall perceive them clear at first, and of the colour of the copper, the water not making on a sudden any other operation than appears to view.

Afterwards, when you shall have perceived the water to operate a small time, pour it off from the plate into some vessell which is most proper to contain it, as into an earthen dish well varnisht, or the like, then throw some fair water upon the plete, to

extinguiſh and waſh away the remainder of the *Aqua fortis*, which was upon the plate, then dry it by the fire, as you have been taught before, when we diſcourſt of hard varniſh; and as touching your ſoft varniſh and *Aqua fortis* of the Refiners, be carefull in eſpeciall manner to cauſe to evaporate that moiſture, which in the Winter time is commonly between the copper and the varniſh, before you lay on your *Aqua fortis*: The ſuperfluous moiſture being evaporated from it, take your mixture of oyl and greaſe, as is before mentioned in the beginning of this diſcourſe of hard varniſh, and therewith cover thoſe places which ought to be moſt tender and ſweet; and having covered them the firſt time, lay on again upon your plate the ſame *Aqua fortis* which you had taken away, and leave it on for one half quarter of an hour, or a longer time, according to your diſcretion; then take off the *Aqua fortis*, and cover with your mixture thoſe next places, as you ſhall ſee occaſion: And as you would have your lines or ſtrokes to be deeper and deeper, ſo cover the ſweeter part by degrees with your mixture, that the *Aqua fortis* may ly the longer on the deeper ſtrokes.

Laſtly, lay on yet again the aforeſaid *Aqua fortis*, and leave it on for the ſpace of half an hour, either more or leſſe according to the ſtrength of the water and nature of the work, then take it away and caſt ſome fair water upon the plate again.

That being done, take off your border of wax, then heat your plate, ſo that the oyly mixture and the varniſh may throughly melt; then wipe it well with a linnen cloth, afterwards rub it all over with oyl-

oyl-Olive, with a piece of old beaver roll'd up, and that being done, touch it over again with your graver in thoſe places where it ſhall be needfull.

One thing I ſhall advertiſe you of, which is, that while the *Aqua fortis* is upon your plate, you take a feather and dip it to the bottome of the ſaid *Aqua fortis*, ſweeping it along to remove the froth or ſcum which gathers upon your ſtrokes or hatchings, while the water makes its operation; as alſo to give the more way to the operation of the water, and to ſee if the varniſh be not broke up, which the bubling of the water hinders you from diſcerning.

You may alſo take notice that the *Aqua fortis* of the hard varniſh, will ſerve excellently well to eat into the work made by the aforeſaid ſoft varniſh, and that the manner of applying the oyly mixture, is all one with that of hard varniſh, and who ever uſeth it may be aſſur'd, that it is much more excellent for this purpoſe than that of the Refiners; Moreover, it is not ſo ſubject to cauſe the varniſh to break up, nor to many other accidents, as the being hurtfull to the ſight, or to ones health, as that of the Refiners is, nevertheleſſe every one may uſe which of them he pleaſeth.

Sect. 22. *The manner how to lay a white ground upon your hard or ſoft varniſh.*

THere is a way to whiten your varniſhes upon the plate, in ſtead of making them black with a candle, which is thus.

When you have apply'd your hard varniſh (as

hath been taught) upon the plate, harden it upon the fire without blacking it, yet in the ſame manner as if it were blackt, then let the plate cool; and having gotten white Ceruſſe and put it into an earthen diſh well leaded, with a little Flanders Starch in it, ſet them upon the fire and melt them together, making them pretty hot, that being done, take up the white Ceruſſe, which ought to be indifferently clear, with a bruſh or great pencill of hoggs hair, and therewith whiten your varniſh, laying it as thin and as even as you can, then leave it to dry, laying the plate flat in ſome convenient place; and if by chance in whitening it, the white be difficult to ſpread, you need do no more, but put among the ſaid white Ceruſſe a drop or two of the gall of an Ox, and ſo mingle them together in the diſh with your bruſh. And for the ſoft varniſh, you ſhall need onely to do the ſame thing; after you have laid it upon the plate and extended it very evenly with the featherd end of your quills; Some will ſay, that if they black it before they apply the white upon it, when they come afterwards to grave, the hatchings will be the more black, and by conſequence will appear ſo much the more diſtinct to the eye. But to this I anſwer:

Firſt, That when it is blackt, the white will not touch it, and that they muſt not venture to put ſo much gall, for fear of ſpoiling the varniſh.

Secondly, That if the white ſhould ſpread wel, yet it would not appear otherwiſe then grey, by reaſon of the blacking of the ſaid varniſh, unleſſe you ſhould lay it ſo thick that all would be nothing worth.

The

The marking of your deſign upon ſoft varniſh, is performed with the duſt of red chalk (as is before mentioned) ſpeaking of hard varniſh, or with rubbing well the paper or deſign with the duſt of black chalk or black lead, when the varniſh is made white: for red chalk is moſt proper for a black ground.

When you ſhall have grav'd that which you intend upon the ſoft varniſh, and that you go about to etch your plate with *Aqua fortis*; that which you have then to do, is to take a little fair water, ſomewhat more than lukewarm, and to caſt it upon the ſaid plate, and then with a ſoft clean ſponge, or with the fleſhy part of the end of your finger, to rub upon the ſaid white Ceruſſe to moiſten it all over; afterwards waſh the ſaid plate to take off the whiting of it, and then dry it. Laſtly, you may lay on which of the two *Aqua fortiſſes* you pleaſe; and for the preſerving of the ſaid white varniſh, while you are working, you ſhall onely need to lay upon it a piece of ſoft linnen inſtead of paper, or elſe of Damaskt linnen.

If you ſhall chooſe rather to take away the ſaid whiting, you muſt take ſome *Aqua fortis* of the Refiners, tempered with fair water, lay it upon the plate, diſperſing it all over, this will ſoke and quickly eat in, after that you have alſo thrown clean fair water upon it, having in this manner taken away the whiting, you ſhall alſo let the water dry up, which ſhall remain upon it, and laſtly cauſe it to eat into your work as I have ſaid before.

Sect. 23. *Another way how to lay a white upon your varniſh.*

TAke Ceruſſe of the beſt and grind it very fine upon a ſtone with fair water, that being done take gum-water, and pour a ſmall quantity upon the ſtone and mix it with the Ceruſſe, then take a large pencill of hoggs hair or the like, provided it be not too ſtiff, with that pencill take it off the ſtone, and ſpread it thin all over your plate; and immediate after, take a larger pencill made of long and very ſoft hair, either of a Foxes tail, or Bears hair, and with a very light and gentle hand paſſe it all over the plate, ſo as to make it ly exactly even in all parts, that the ſtreaks of the former bruſh may not appear, then place your plate ſo, that it may ly very even, and let it dry.

By the way it will be neceſſary to give you this advertiſement, that you are not to mix too much gum with the white, nor too little; for if there be too much it will break and crack the varniſh, if there be too little it will eaſily rub off: therefore you muſt be carefull to uſe neither more nor leſſe than will juſt ſerve to binde the white upon the plate. Likewiſe you muſt have a care not to lay it too thick, for if it be, you cannot work with that neatneſſe and curioſity as otherwiſe you may.

Sect. 24. *Here followeth the manner, after that your plates are eaten into by the* Aqua fortis, *how to touch up, or re-grave that which haply you may have forgotten, or that which you would amend or supply.*

BEfore I make an end, I thought fitting to shew you the manner, how to touch over again many things according as need may require, by the means of *Aqua fortis*, as when it happens that having made upon your copper any thing that doth not at all please you, and that for this cause having covered it with your oyly mixture, to the end that the *Aqua fortis* should not perform its operation, or that you would add any ornaments either in Drapery, or any other thing which might be thought on, upon severall occasions. In this case therefore take your plate and rub it over well with oyl-Olive, in those places where there is any thing graven, in such sort, as that the blackness and foulness, which is likely to be in the hatchings or strokes may be taken away. Afterwards take out the grease so throughly with crumms of bread, that there may remain no grease nor filth upon the plate, nor in any of the strokes or hatchings.

Then heat it upon a char-cole fire, and spread the soft varnish upon it with a feather, as hath been said before. That which you are to take speciall care of is, that the hatchings, which you would have to remain, be filled with varnish: That being done, black it, and then you may touch over again, or add what you intend. And lastly, make your hatchings by the means of your

needls according as the manner of the work ſhall require, being carefull before you put on the *Aqua fortis*, to cover with your oyly mixture (as is ſaid before) the firſt graving which was upon your plate; for in caſe that the varniſh ſhould not have entred all over, that to be ſure will: In ſo much, that if it ſhould happen in ſome places of the hatchings, there ſhould be neither of the mixture nor varniſh, the *Aqua fortis* would not fail to enter and ſpoil all. Having then cauſed the *Aqua fortis* to eat into your work, take away your varniſh from your plate, by the means of the fire, as hath been ſaid before.

The

THE ART OF GRAVING.

Sect. 25. *The severall wayes of drawing your design upon the plate.*

BEfore I speak of the manner of managing and whetting your Graver, I think it will not be amisse to let you know the wayes that are used in the drawing your designe upon the plate; which must be of the same bigneſſe as your design or print is, which you intend to copy.

Put your plate upon the fire and let it heat a little, then take a piece of the whiteſt Virgin-wax and spread it thin over the plate, and with a smooth feather gently stroak it all over, to the end it may lie the more even and smooth; then let it cool. If you intend to coppy a printed picture, and that you would have it to print off the same way when it is graved, with your pattern; then you must place your picture which you would grave, with the face or printed side next to your plate, waxed over as is before mentioned; and having placed it very exactly, rub the back-side of the print with a burnisher (or any thing that is smooth and round) and you will find that it will stick to the wax which

is upon the copper: When you have ſo done, take off the print (beginning at one ſide or corner) but be carefull you take it not off to haſtily, for by ſo doing you may tare your print or deſign; and alſo if you put your wax to thick upon the plate, it will be a means to cauſe the ſame inconvenience.

But if you would grave it the ſame way as your print or deſign is, then take the duſt of black-lead or black-chalk, and rub the backſide of your drawing or print all over therewith, and place it with that ſide ſo blacked towards the plate ſo waxed, as is before mentioned; and with your needle or drawing-point draw all the out-lines of your deſign, and you will find all thoſe lines upon your plate; but if you deſire to preſerve the backſide of your deſign from being blacked with the duſt before mentioned; then take a fine thin piece of white paper of the bigneſſe of your deſign, and inſtead of rubbing the backſide of your print or deſign, rub one ſide of the ſaid paper with the duſt or powder of black-chalk as is before mentioned; and placing it with the ſide ſo blacked, next to the plate waxed, over-lay the backſide of your deſign upon the paper, and fix them both firm to your plate at each corner with a little wax, then draw the out-lines of your deſign: onely note, that you muſt lean ſomewhat harder with your needle in drawing.

There are other wayes uſed for this purpoſe, which I think needleſſe to trouble you with; onely this I ſhall tell you, that in caſe you deſire to preſerve your deſign from being any way defaced by the marks of your needle in drawing the out-lines:

take

take a fine piece of white paper, and having oyled it hold it by the fire, to the end the oyl may ſooner penetrate it; and having ſo done wipe it very dry with a linnen ragg, and place the ſaid paper upon your deſign, making it faſt at each corner; and you will perfectly diſcern your deſign through the paper; then with a black-lead well pointed, draw all the out-lines of your deſign upon the ſaid oyled paper; when you have ſo done, place it upon the plate in the like manner as is before mentioned.

Sect. 26. *The forms of graving-tools, as alſo the manner of whetting your Graver.* Pl. 9.

THe upper part of this figure will ſhew two ſorts of Graving-tools, the one formed ſquare, the other lozeng: the ſquare Graver makes a broad and ſhallow ſtroak, or hatch; and the lozeng makes a deep and narrower ſtroke. The uſe of the ſquare Graver is to make the largeſt ſtrokes, and the uſe of the other is to make the ſtrokes more delicate and lively. But I preferre a Graver made of an indifferent ſize betwixt both theſe two; which will make your ſtrokes, or hatches, ſhow with more life and vigour; and yet with ſufficient force, according as you ſhall manage it in your working: The forms of which will appear in the I. and II. figures.

The III. figure ſhews you how to whet the two ſides of your Graver, which is to be done in this manner following; you muſt have a very good oyl-ſtone ſmooth and flat, and having powred a little Sallad oyl thereupon, take the Graver, and laying one ſide of it (that which you intend ſhall cut the copper)

is upon the copper: When you have ſo done, take off the print (beginning at one ſide or corner) but be carefull you take it not off to haſtily, for by ſo doing you may tare your print or deſign; and alſo if you put your wax to thick upon the plate, it will be a means to cauſe the ſame inconvenience.

But if you would grave it the ſame way as your print or deſign is, then take the duſt of black-lead or black-chalk, and rub the backſide of your drawing or print all over therewith, and place it with that ſide ſo blacked towards the plate ſo waxed, as is before mentioned; and with your needle or drawing-point draw all the out-lines of your deſign, and you will find all thoſe lines upon your plate; but if you deſire to preſerve the backſide of your deſign from being blacked with the duſt before mentioned; then take a fine thin piece of white paper of the bigneſſe of your deſign, and inſtead of rubbing the backſide of your print or deſign, rub one ſide of the ſaid paper with the duſt or powder of black-chalk as is before mentioned; and placing it with the ſide ſo blacked, next to the plate waxed, over-lay the backſide of your deſign upon the paper, and fix them both firm to your plate at each corner with a little wax, then draw the out-lines of your deſign: onely note, that you muſt lean ſomewhat harder with your needle in drawing.

There are other wayes uſed for this purpoſe, which I think needleſſe to trouble you with; onely this I ſhall tell you, that in caſe you deſire to preſerve your deſign from being any way defaced by the marks of your needle in drawing the out-lines:

take

take a fine piece of white paper, and having oyled it hold it by the fire, to the end the oyl may ſooner penetrate it; and having ſo done wipe it very dry with a linnen ragg, and place the ſaid paper upon your deſign, making it faſt at each corner; and you will perfectly diſcern your deſign through the paper; then with a black-lead well pointed, draw all the out-lines of your deſign upon the ſaid oyled paper; when you have ſo done, place it upon the plate in the like manner as is before mentioned.

Sect. 26. *The forms of graving-tools, as alſo the manner of whetting your Graver.* Pl. 9.

THe upper part of this figure will ſhew two ſorts of Graving-tools, the one formed ſquare, the other lozeng: the ſquare Graver makes a broad and ſhallow ſtroak, or hatch; and the lozeng makes a deep and narrower ſtroke. The uſe of the ſquare Graver is to make the largeſt ſtrokes, and the uſe of the other is to make the ſtrokes more delicate and lively. But I preferre a Graver made of an indifferent ſize betwixt both theſe two; which will make your ſtrokes, or hatches, ſhow with more life and vigour; and yet with ſufficient force, according as you ſhall manage it in your working: The forms of which will appear in the I. and II. figures.

The III. figure ſhews you how to whet the two ſides of your Graver, which is to be done in this manner following; you muſt have a very good oyl-ſtone ſmooth and flat, and having powred a little Sallad oyl thereupon, take the Graver, and laying one ſide of it (that which you intend ſhall cut the copper)

copper) flat upon the ſtone, whet that ſide very flat and even; and to that purpoſe have an eſpeciall care to carry your hand ſtedfaſt, and with an equall ſtrength, placing your forefinger very firm upon the oppoſite ſide of your Graver; to the end that you may guide it with the more exactneſſe: then turn the very next ſide of your Graver, and whet that in the like manner, as you did the other; ſo that there may be a very ſharp edge for the ſpace of an inch or better; then turning uppermoſt that edge which you have ſo whetted, and ſetting the end of your Graver obliquely upon the ſtone, carry your hand exactly even, to the end that it may be whetted very flat and ſloping, in the form of a lozeng, making to the edge a ſharp point, as the figure IIII. ſhews you.

It is very neceſſary that you take great care in the exact whetting of your Graver; for it is impoſſible that you ſhould ever work with that neatneſſe and curioſity as you deſire, if your Graver be not very good, and rightly whetted.

I cannot demonſtrate it ſo plain and fully by figures, and diſcourſe, as I would: if you have acquaintance with an Artiſt in this way, you may eaſily underſtand it in a ſhort time.]

Sect.


2
1
Fig: II.
Fig: III
p. 45.

ect. 27. The manner how to hold your Graver, with other particulars.

YOu may ſee alſo that the uppermoſt part of this figure deſcribes to you the form of two Gravers, with their handles fitted for the whetting. They that uſe this Art, do before they make uſe of them, commonly cut away that part of the knob or bowl that is at the end of their handles, which is upon the ſame line with the edge of their Graver; to the end it may not obſtruct or hinder them in their graving, as the figure II. ſhews you.

For if you ſhould work upon a large plate, you will find that part of your handle (if it be not cut away) will reſt ſo upon the copper, that it will hinder the ſmooth and even carriage of your hand in making your ſtrokes or hatches; alſo it will cauſe your Graver to run into the copper in ſuch ſort, that you ſhall not be able to manage it at your pleaſure.

The third figure deſcribes to you the way of holding your Graver; which is in this manner. You muſt place the knob or ball of the handle of your Graver in the hollow of your hand, and having extended your forefinger towards the point of your Graver, laying it oppoſite to the edge that ſhould cut the copper, place your other fingers on the ſide of your handle, and your thumb on the other ſide of the Graver, in ſuch ſort that you may guide your Graver flat and parallel with the plate; as you may ſee in the IIII. figure.

Be carefull that your fingers do not interpoſe be-

between the plate and the Graver, for they will be troublesome, and hinder you in carrying your Graver level with the plate, so that you cannot make your strokes with that freedome and neatnesse, as otherwise you may. This I think fit to give you notice of in this place, because the skill of holding your Graver is that which you must first perfectly learn, and be able to practise without pain or difficulty; or else you will not gain so great a readinesse and command of your hand, as is required in an accurate and skilfull Graver.

Sect. 28.

Sect. 28. *The manner of governing your hand in Graving, and other particulars.*

HAving described the way of holding your Graver, the next thing is to shew you how to guide your Graver upon the plate in making of your strokes, which are streight or crooked; that you may work with the more ease and convenience, you must have a strong round leather cushion fill'd with sand or fine dust; let it be made about half a foot broad in the diameter, and three or four inches deep; lay this upon a table which standeth fast and firm; then lay your plate upon the cushion, as is described in the II. figure in the former Section.

When you are to make any straight strokes, hold your Graver as is directed in the former Section; and if you will have your strokes deeper or broader in one place than in another, in that place where you would have them deepest, you must presse your hand hardest; but especially in making of a streight stroke, be carefull to hold your plate firm and stedfast upon the cushion.

And if you make any crooked or winding strokes, then hold your hand and Graver stedfast; and as you work turn your plate against your Graver; for otherwise it is impossible for you to make any crooked or winding stroke with that neatnesse and command, as by this means you may, if you do not move your plate, and keep your arm and elbow fixed or rested on the table.

If as you are working your Graver happen to break often on the point, it is a sign it is tempered too

too hard; therefore take a red hot charcole, and lay the end of your Graver upon it, and when you perceive your Graver to wax yellowish, dip it in the water: If your Graver become blunt without breaking, it is a sign it is nothing worth.

It will be convenient for you to have a piece of box or hard wood, that after you have sharpened your Graver, by striking the point of it into the said box or hard wood, you may take off all the roughnesse about the point, which was caused by whetting it upon the oyl-stone. After you have graved part of your work, it will be necessary to scrape it with a sharp edge of another Graver, carrying it along even with the plate, to take off the roughnes of the strokes; but in so doing take heed of making any new scratches in your work.

To the end you may better see that which is graven, they commonly roll up close a piece of a black Felt or Castor, liquored over a little with oyl-olive, and therewith rub the places graven: And if you perceive any scratches in your plate, rub them out with your burnisher: and if you have graved any of your strokes too deep, you make them appear fainter with rubbing them with your burnisher.

FINIS.

THE Way of Printing Copper-Plates,

And withal,

How to make the PRESS.

Advice.

I Reckoned at firſt not to enlarge upon the manner of Printing Copper-plates, as a thing not belonging to my Calling. But ſeveral Friends having adviſed me to the contrary, for the ſatisfaction of ſeveral, it will not be amiſs to enlarge upon it. To the end that thoſe who may have Engraved Plates, and are diſtant from Places where this ſort of Printing is uſed, may by theſe Papers have ſome knowledge how to make uſe thereof, in caſe of neceſſity; it being an Art not treated of in Publick Writings, that I know of, and which is fully neceſſary to ſet forth the ef-

fects of Engraved Plates, as well those done with the Engraver, as with *Aqua Fortis*, having been invented but for them.

This has then caused me to set down here in order, in several Figures, and with their Dimensions the Pieces, both asunder and join'd together, of a Press to Print Cuts in, and explain, to my best, all the Particulars I think fit, to make a good and fair Impression.

And, for as much as treating of the means how to get the Press made, to joyn and set it up, and furnish it with all Necessaries. I am forced to make the Plate pass through the Rollers of the said Press before it be inked, as also before I treated of the boiling of the Oyl, of the Lamp black, and of the Colours they Print with, of the Ball, of the wetting of the Paper, and how to lay the Ink on the said Plate. I thought fit to give you notice, that the Discourse which treats of these things, is after that of joyning and setting up the Press, and how to make the Plate and the Table pass between the Rollers.

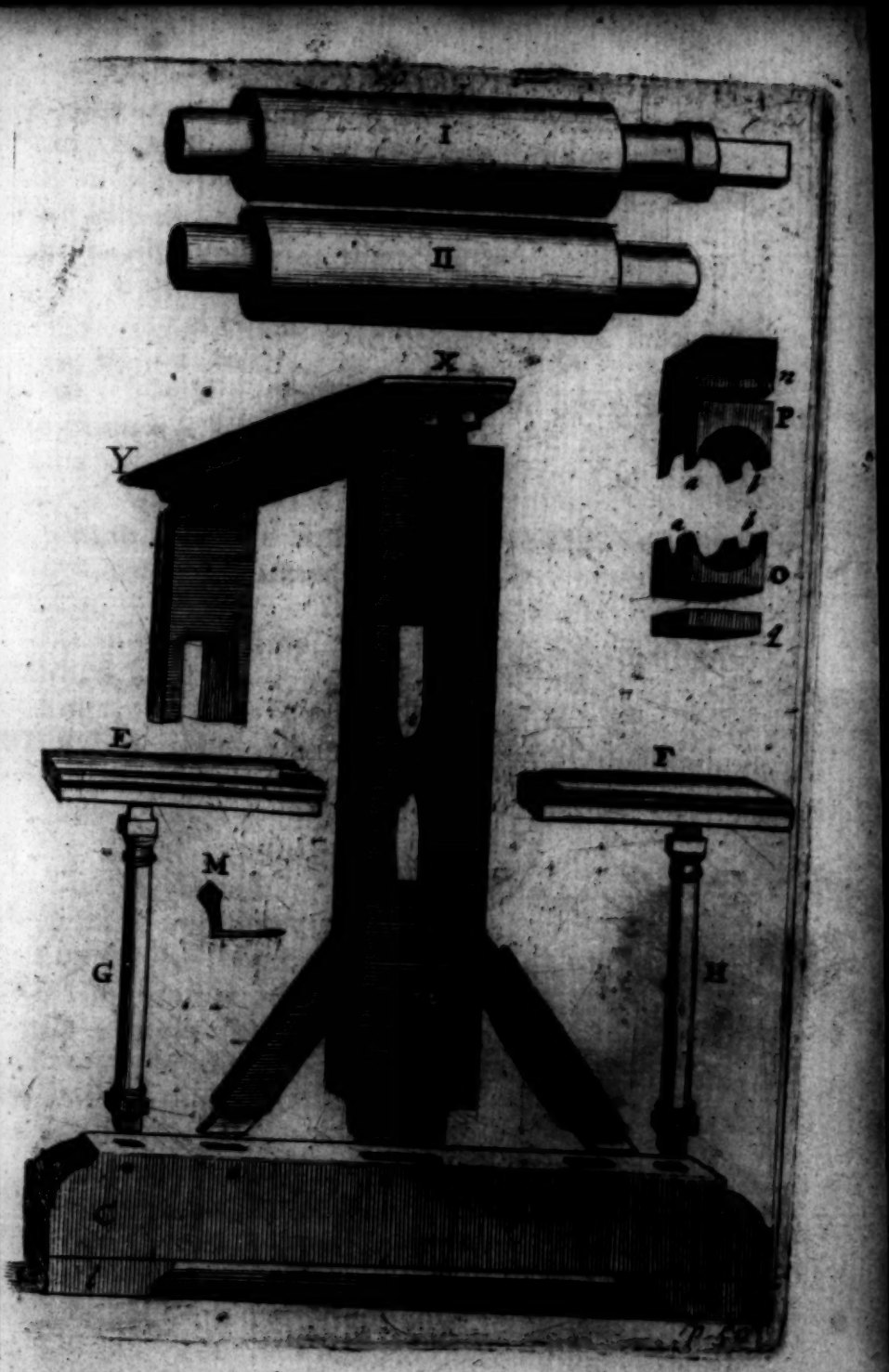
PLATE XI.

Explication of the Pieces that make up the Press to Print Cuts with.

THere are several Pieces that make up a Press to print Cuts with, whereof the best part is represented in Perspective in this Plate.

Amongst these Pieces there are two called the Feet, marked C D, four called *Billots*, marked *l*, *m*, which serve to heave up the Press, and to keep it steady.

Two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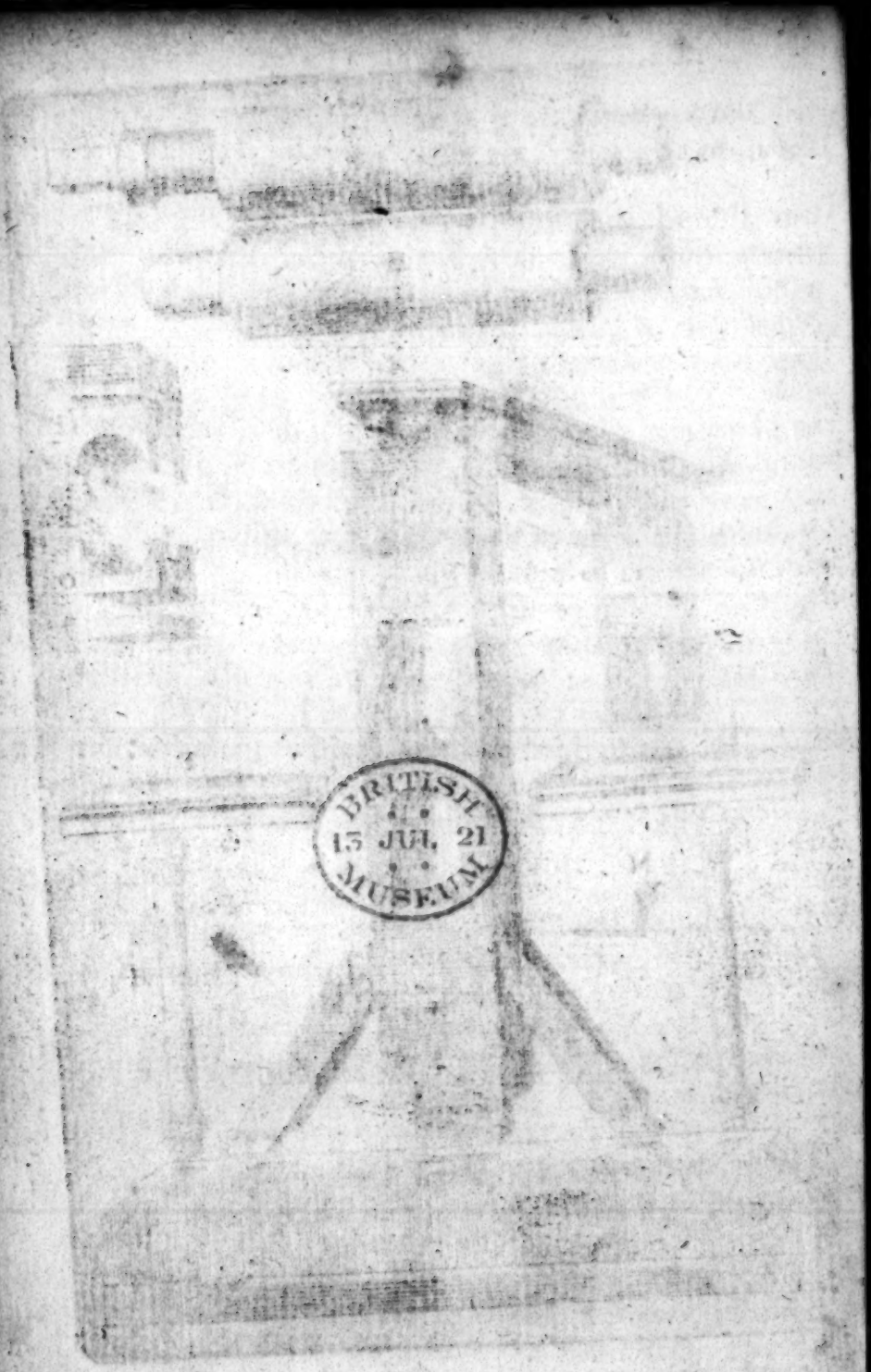


Two as the Piece A *B*, which they call *Jumells* or *Posts*, having each two holes cut Arch ways *r s t u*, and *x y q*, pierced quite thro' in right Angles; four like to the two P O, called Boxes; and four pieces of Wood, as the two *n q*, called *Hausses*, which are to be placed in the two holes of the said *Jumells*, to the end that the said Boxes fasten the holds of the Rollers, as it shall be explain'd in its place. The said four Boxes must be knotched as at the place *a b*, to cover with Tin the inside of the round of those Boxes, as it shall be said hereafter.

There are four of these peices, as the two I K, which serve as so many Props to the *Jumells* or Posts.

Four, which they call the Arms of the Press, marked E F.

Four, like the two Pillars G H, which are fastned by one end at the Feet, and at their other end to the Arms of the Press,

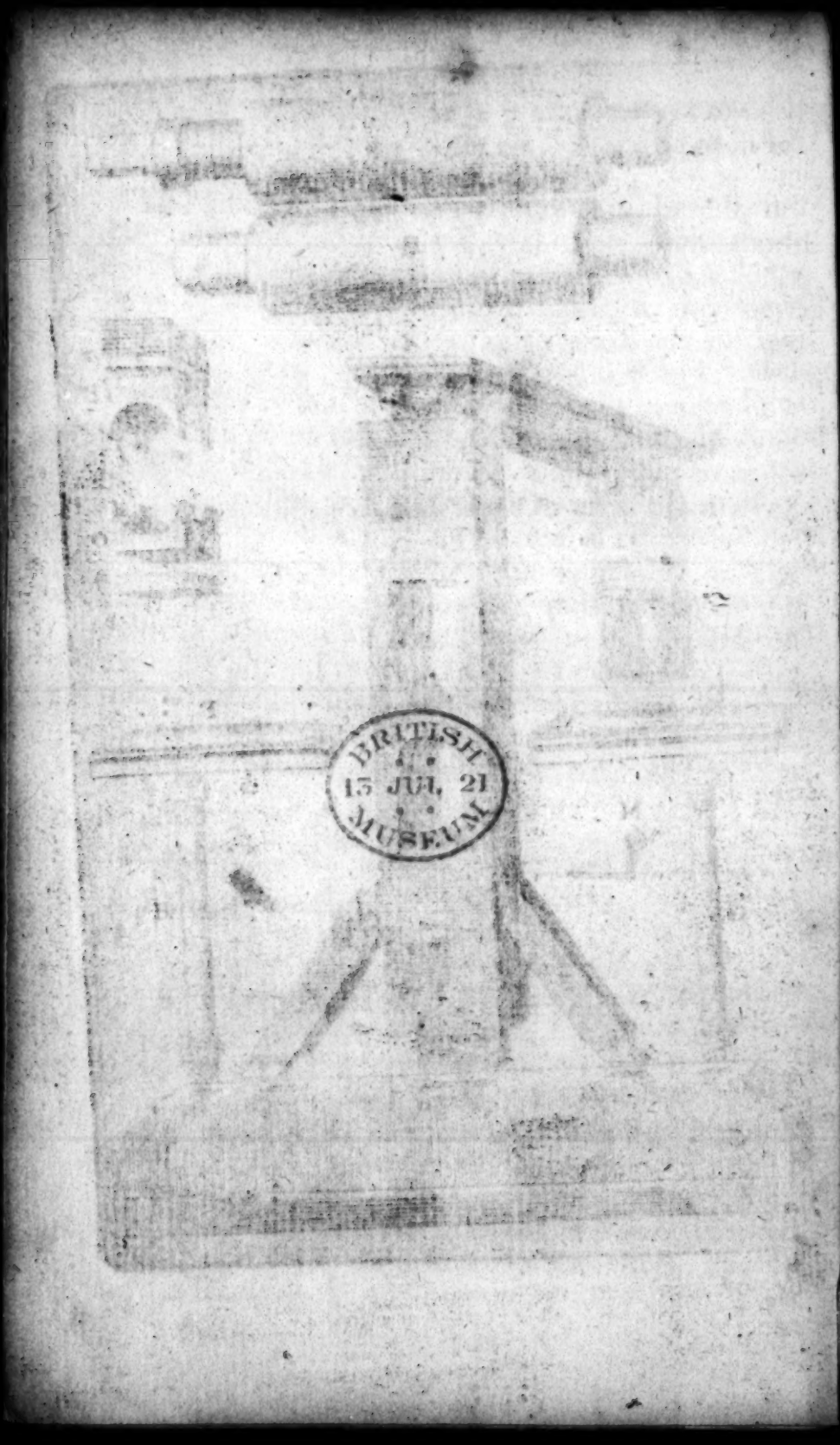
Then there is next the Screw, marked L, whereof there must be two to hold the cross Beam, which shall be explained in its place; then the Iron Key to shut the said Screws, marked M.

You see the piece marked X Y, which enters in like the Swallows Tail into the two Posts or *Jumelles* to keep them steady above.

Moreover you see above the two Rollers, the uppermost marked I, and the undermost marked II.

There remains still the Table, the Cross or Handle, and two little Boards which enter into the groove of the Arms, and the two other peices cut in the Swallows Tail, and the cross Beam, which shall be discoursed of afterwards.

The pieces of the Press must be of good seasoned Oak, or the like, excepting the Table and the



Two as the Piece A B, which they call *Jumells* or *Posts*, having each two holes cut Arch ways *r s*, *t u*, and *x y*, *q*, pierced quite thro' in right Angles; four like to the two P O, called Boxes; and four pieces of Wood, as the two *n q*, called *Hausses*, which are to be placed in the two holes of the said *Jumells*, to the end that the said Boxes fasten the holds of the Rollers, as it shall be explain'd in its place. The said four Boxes must be knotched as at the place *a b*, to cover with Tin the inside of the round of those Boxes, as it shall be said hereafter.

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The pieces of the Press must be of good seasoned Oak, or the like, excepting the Table and the

Rollers, which muſt be of good Walnut-tree, or the like; and the Rollers of Quarters, and not of round Wood: They are alſo made of Elm.

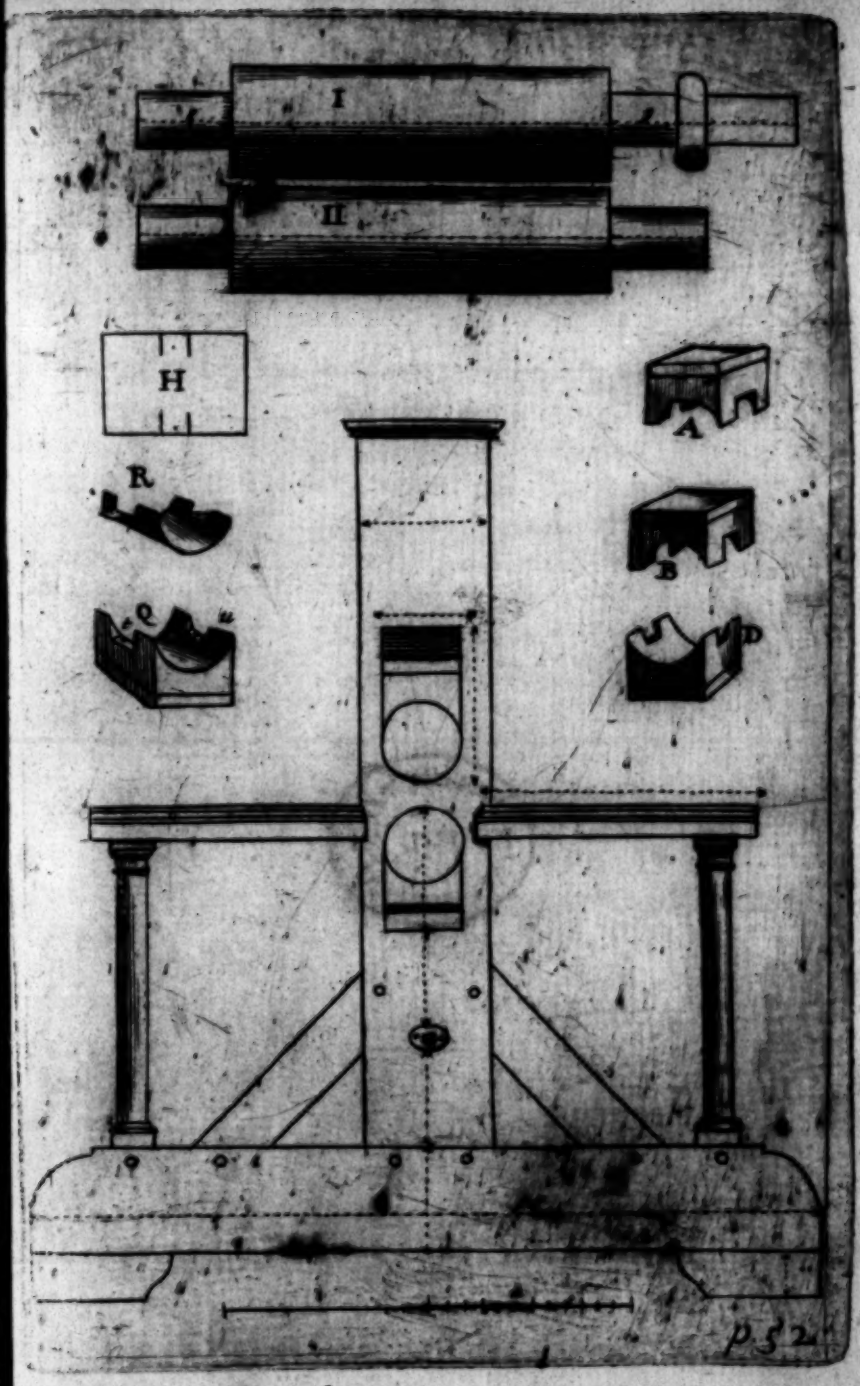
PLATE XII.

The joyning of the pieces which make up one of the ſides of the Preſs.

YOu ſee in this Plate the greateſt part of the pieces whereof we have ſpoken, ſet together, to make up one ſide of the ſaid Preſs; ſo that having made up another ſide equal to it in all parts, there remains but three or four pieces, which I ſhall deſcribe in the following Plate, to complete the Preſs.

I have ſet down the meaſure to each piece, and to ſay a Foot, I put *pi*, to ſay Inch, I put an *i*, and to ſay Line, I put *l*, and moreover I have ſet at the bottom a Scale of two Foot, whereof there is one divided into twelve Inches; I have again ſet down in this Cut, the two Rollers, and the two uppermoſt Boxes A B, and alſo the two undermoſt Q and D, to ſhew the meaſures thereof, and to ſhew that the Roller 1 muſt be faſtned into the upper arch and hole, by its hold 8, and its other hold marked 9 is to be put into the hole and arch of the other Poſt or *Jumelle*, directly oppoſite to this. Then having placed a Heaver of Wood in the lower hole, and upon this Heaver one of the Boxes, ſo that having placed upon it one of the holds of the under Roller 11, it graſpeth the ſaid hold; you muſt do likewiſe the ſame for the other hold to the other Poſt as you have done to the upper Roller noted 1.

T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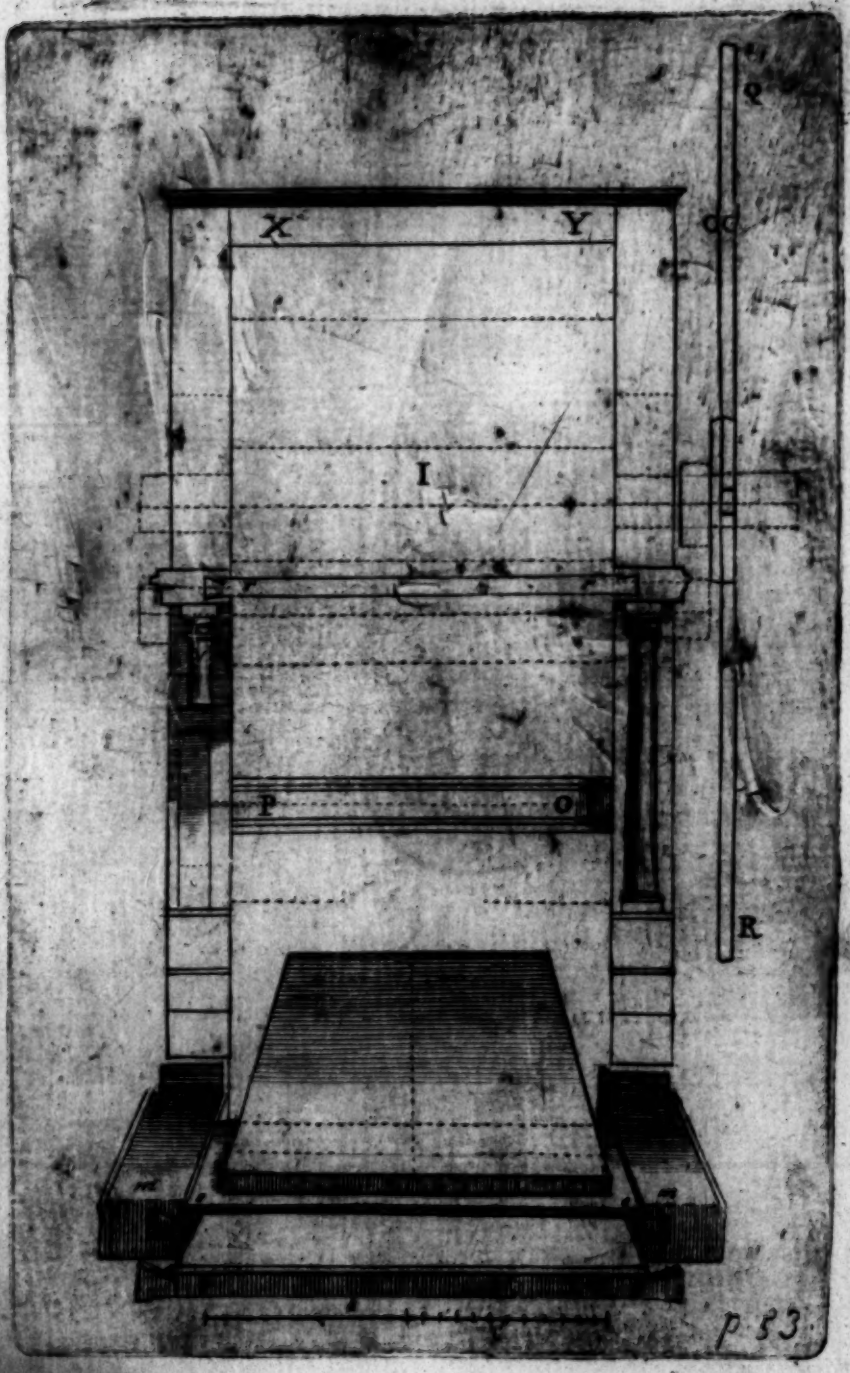
H
R
A
B
p 52


X
Y
I
P
O
Q
R
p 53

To close, I must tell you, that you must come back to the upper Roller, to which we must put now the Boxes on the holds, and also the two Heavers, then fill up what's empty about it in the holes, as you may see in the Figure; and before you put on the Boxes you must have plated them over all four with Tin in the inside, to the end, that the holds rubbing upon them, they may not wear them out, and hinder them from moving freely; I believe that the two pieces H R, and the Box Q make them evident to your sight, without any larger Discourse.

The piece H is a Plate of Tin cut out of a fit size to preserve the hollow of the Box, which graspeth the hold of the Roller, which being folded in round, like R, must be put into the hollow of the Box, and fastned by its two little Ears Q. Remember to do the same to all four, and before you fit your Press to Print therein, you must have greased (with some old Grease) the said Tin Plates, and the holds of the Rollers.

PLATE XIII.

The Press seen in Front, and fitted up with all its Pieces but the Table.

YOu see by this Figure with its Measures, how the Press is fitted up; so that having made, as 'tis said above, your two *Jumelles* or Posts, and their Pieces annexed, to make the two sides of the Press, it remains but to shew you how they hold together by the means of four Pieces.

First

First by the lower piece P O, call'd *Traverſe*, which is faſtned to the two main Poſts or *Jumelles*, by two holds and two ſcrews.

Higher by the piece X Y, call'd the *Sommier* or croſs Beam, which is alſo faſtned to the two main Poſts by a Swallows Tail at each end, and to a true Square. There are ſome Preſſes wherein 'tis applied by the Holds and Screws, as the Traverſe P O.

You ſee likewiſe traced out by Pricks, how the two Rollers reſt by their holds on the Boxes and holes of the two main Poſts, and then the Handle faſtned to the ſquare hold of the upper Roller marked 1. The ſaid Handle or Croſs ſhall be repreſented in the following Cut, as in Perſpective, to ſet forth plainly the ſhape thereof.

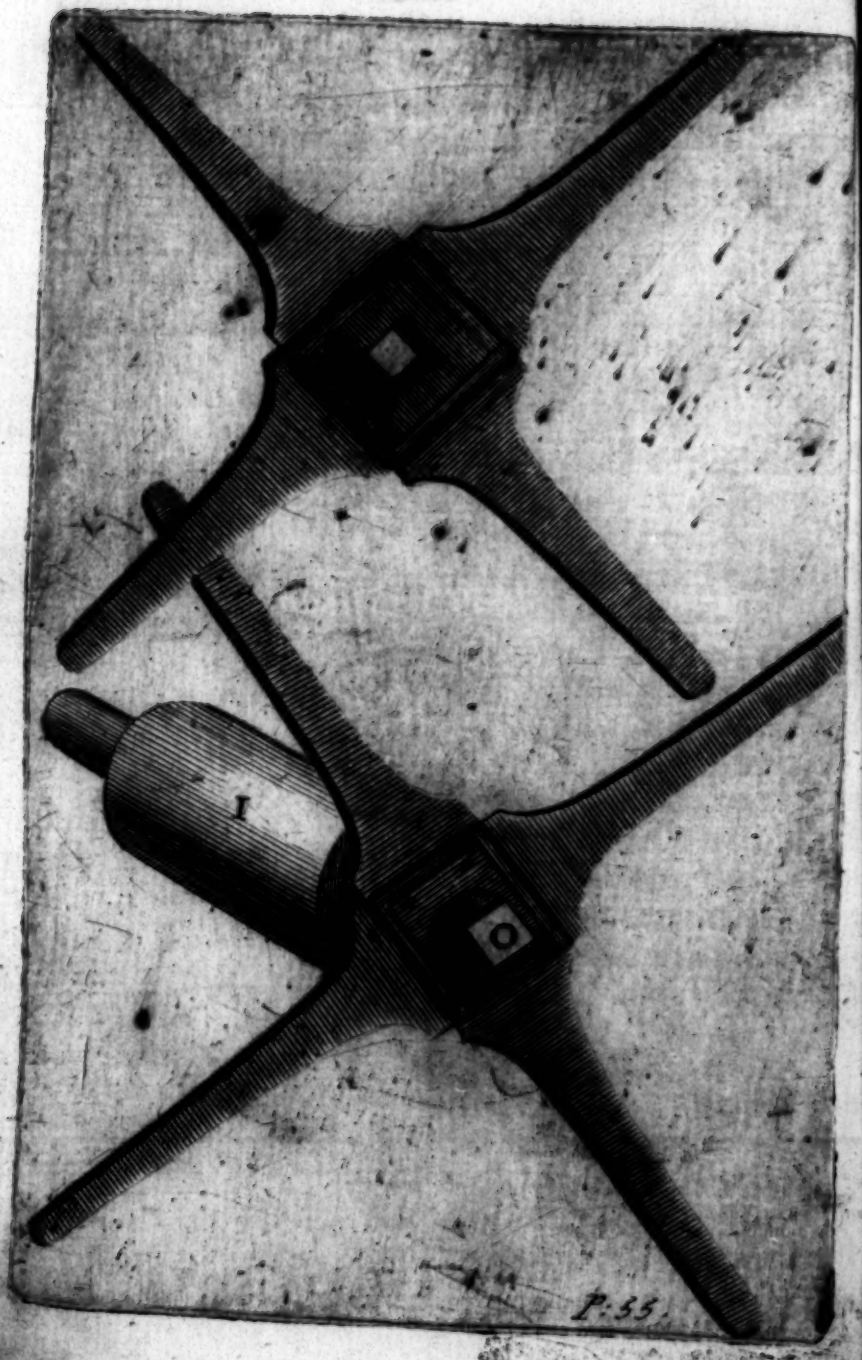
The Pillar or right Foot *y*, is broken only to ſhew you the place of the Traverſe which holds to the main Poſt and to the Foot.

I have put under in a greater ſize, a piece of the two Arms of the Preſs, where is faſtned the piece in a Swallows Tail *r r*, after having made the little Board *o o* ſlide into two Grooves which are at the two Arms *m m*: You muſt be ſure to remember, that the upper part of the under Roller (where the Table of the Preſs is to paſs) be higher by an Inch or there about, than the piece made with the Swallows Tail *r r*, and the little Board; otherwiſe the Table would paſs over it ſtedily, and it muſt not.

The ſame muſt be done to the other ſide of the Preſs, to its two other Arms.

I have put alſo at the bottom in Perſpective the Table of the Preſs, which ought to be three Foot and three Inches long, and in breadth one Foot nine Inches, ſix Lines or there about, and an Inch

and


I
O
P. 55.

nd ſix Lines thick, becauſe it muſt be ſometimes edreſſed.

The Rollers muſt be turn'd very even and parallel n all reſpects; and in caſe the upper one ſhould ſplit it muſt be bound up at the two big ends with Iron Hoops, making denches into the Wood according o the thickneſs of the Circles, which I have mark-ed with Pricks at one of the ends of the upper Rol-ler.

The Form and Figure of the Handle or Croſs.

YOu may have perceiv'd by the precedent Figures, that the Handle or Croſs, like to the Wings of a Wind-mill ſerves to turn the upper Roller, which being ſqueezed hard againſt the Table, drags it away as it turneth; then the ſaid Table bearing as it does on the under Roller, it makes it turn, ſo that the upper Roller turns one way, and the under one another.

One muſt be very exact to make the Table ſo, that paſſing between the Rollers, it be ſqueezed alike all along each of the two Superficies, chiefly of that of the uppermoſt; wherefore the Table muſt be extremely even, and ſmooth, and the Rollers turned in the Lathe very round, that being laid on the ſaid Table, no Light may be ſeen between them.

I return to the Handle made in Croſs, and ſay, that I have ſet it down twice in this Cut, one, as in the Figure above, not being joynt to the hold of the Roller, and on that I have ſet down the Meaſures, then again at the bottom I have ſet it faſtned to the Roller 1 exactly ſquare in *o*, as you ſee in the Figure, *a b c d* is a piece of Wood an Inch thick, which

which ſerves only to ſtrengthen the place where the ſaid Handle ſuffers the greateſt ſtreſs. Your Eye tells you that 'tis turn'd with the Hand; and you will ſee in the ſecond Figure or Cut that follows, how to turn it.

And in the firſt that follows, you will ſee how you muſt fit the Preſs for Printing; nevertheleſs, becauſe I have room here to ſay ſomewhat thereof, and laſt I cannot explain all in the following Page, I will tell you beforehand,

That to fit up in general the ſaid Table and Rollers, you muſt firſt take off the Heavers and Boxes which faſten and lye on the holds of the upper Roller, to which is faſtned the Handle made in Croſs, to the end that thruſting the Table, and lifting up the ſaid Roller, the ſaid Table paſs under, and conſequently between the two Rollers, ſo that the ſmooth ſide be upward.

And then you muſt put on again the Boxes and Heavers, together with the Paſteboards, where they were; then ſee whether the Rollers in turning the Handle bear alike on the whole Superficies of the Table. The ſaid Handle is taken off and put on again as occaſion ſerves on the ſquare hold *o*, held only by it alone.

PLATE


d
B
p. 57.

PLATE XV.

The Perſpective of the Preſs ſeen in Front, and furniſhed with all its parts to Print with.

HAving fitted up the Table, as I told you before between the two Rollers, to be yet more ſecure of its exactneſs, you muſt lay on the Table a ſheet of Paper, and over it a good large Plate, thick, all alike, then over that Plate one or two Woollen Cloths, and make all paſs between the two Rollers; and if the Impreſſion of the Plate made upon the ſaid Sheet is every where alike, 'tis probable that 'tis fitted up well; that hinders not but that in Printing for good and all, one muſt look whether the Plate makes its impreſſion all alike, and whether all the ſtrokes engraved give an equal black on the Paper.

Now, tho' hitherto I have ſaid nothing of the Cloths, of the Black, of preparing the Paper, how to ink or black over the Plate, and of other Particulars which are ſet down after. I ſhall not deſiſt from ſhewing how to Print, ſuppoſing that the Plate is blacked or inked over, and that you are provided both with Paper and Cloths.

Suppoſing then that you have too or three Woollen Cloths, ſuch as ſhall be ſpoken of afterwards: The Printer ſtanding and placed in front before the middle of the Preſs, having his Feet placed on *B*, and having towards him the beſt part of the Table *d e f g*; he lays ſmoothly one of his Cloths upon it, then two others again over that, ſo that towards the Roller, the upper Cloth muſt reach a little over the undermoſt, and ſo of the other, and the like if there were more.

Theſe Cloths lying thus ſmooth one over another he turns the Handle, and the Roller drawing the

Table ariſeth eaſily over the Cloths, and when it has got about an Inch over the uppermoſt, the Printer turns ſmoothly over the Roller all the ſaid Cloths, as *f x b e* ſhews it. Then after he lays on a ſheet of white Paper not wet, of the ſame ſize as that which he has wetted, as it ſhall be laid for Printing, and placeth it over the Table between the ſpace *d e f g*, to compaſs and make the Margin of the Plate, and upon this ſheet he puts the engraved Plate, ready inked and a little hot, and according to the Margin that he will give, *viz.* as the Figure ſhews you, the engraved ſide upward, as in C; then lays very even on the engraved ſide the wet ſheet of Paper which he intends to Print, and over that another like ſheet a little wetted with the Sponge, uſually called the *blurring Paper.*

Then he overturns the Clouts on the Roller very ſmooth over all that, and in turning the Handle both gently and roundly, he makes all paſs to the other ſide, as you ſee in this Cut.

Perſpective of the Preſs ſeen ſideways, where the Printer is ſeen turning the Handle.

THe Printer then turns the Handle gently and roundly, and not by jolts and joggs, that the Print comes out clear without Blurs, Spots or Wrinckles, and if the Plates are not of an equal thickneſs every where, he puts between the Table and the Plate pieces of Paſteboard, and thick Papers torn according to the ſize of the ſaid unevenneſs, and when the Plate is thus paſt to the ſide A, ſo that the Roller bears not on the Papers, but only on the ends of the Cloths marked B; he goes to the ſide A and lifts up the Cloths altogether, overturning them on the Roller, as was ſaid before, and next the *blurring Paper.*

Afterwards he takes with both Hands the two ends

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Table ariſeth eaſily over the Cloths, and when it has got about an Inch over the uppermoſt, the Printer turns ſmoothly over the Roller all the ſaid Cloths, as *f x h e* ſhews it. Then after he lays on a ſheet of white Paper not wet, of the ſame ſize as that which he has wetted, as it ſhall be laid for Printing, and placeth it over the Table between the ſpace *d e f g*, to compaſs and make the Margin of the Plate, and upon this ſheet he puts the engraved Plate, ready inked and a little hot, and according to the Margin that he will give, *viz.* as the Figure ſhews you, the engraved ſide upward, as in C; then lays very even on the engraved ſide the wet ſheet of Paper which he intends to Print, and over that another like ſheet a little wetted with the Spunge, uſually called the *blurring Paper*.

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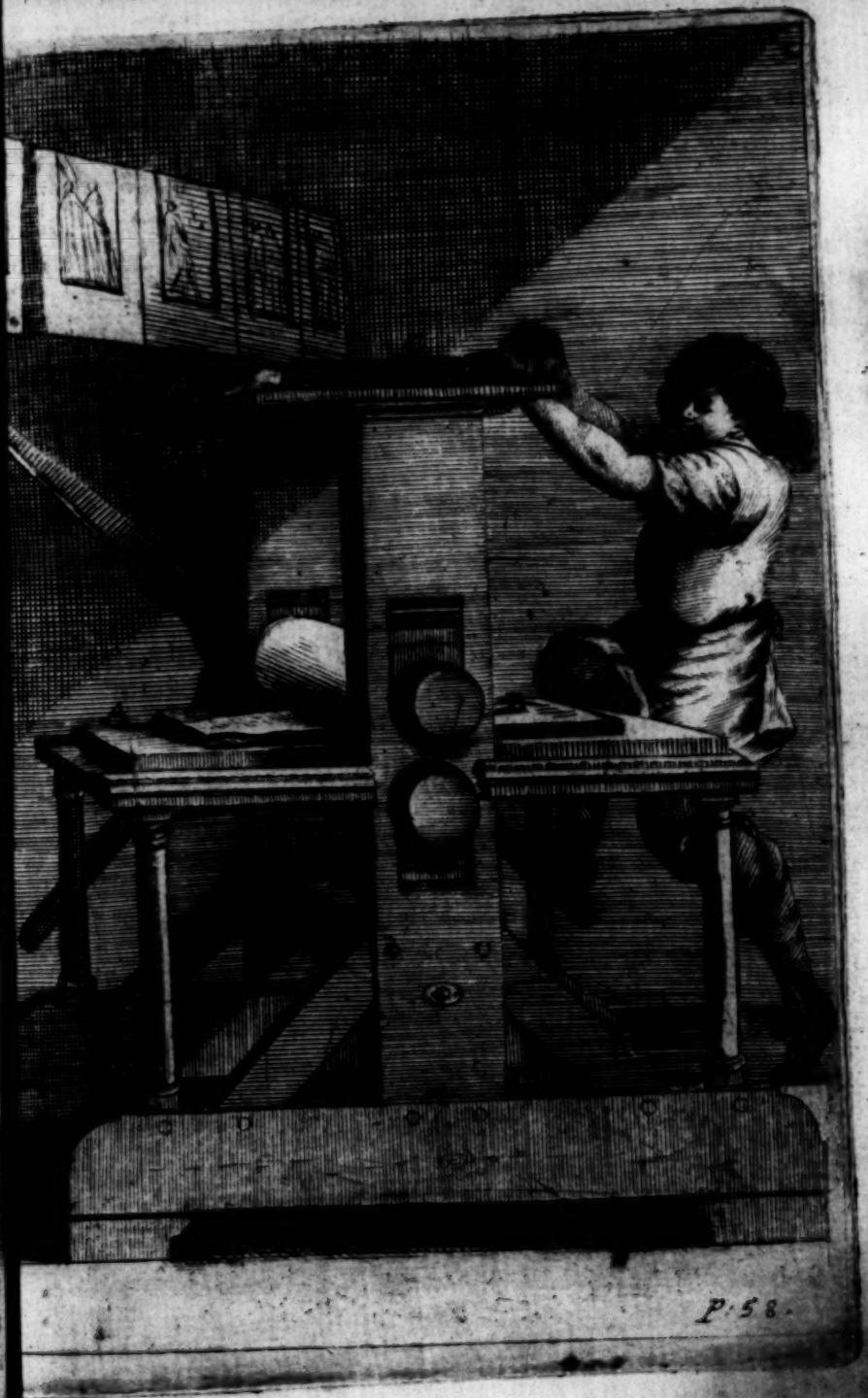

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ends of the ſheet which is on the Plate, and takes it up gently, leaſt the ſtrength of the Black peel off the Paper, then looks whether all hath taken well on the Paper; if ſo, he puts Black again upon the Plate, as it ſhall be told you hereafter.

And having inked it again he lays it again on the Table exactly and precisely in the ſame place where it was before, in laying likewiſe a ſheet of wet Paper and over that the ſame blurring ſheet which he had overturn'd on the Cloths, without wetting it more. Then he turns over all the Cloths very even as before, and being in A, and turning likewiſe the Handle both gently and roundly, he makes the Plate paſs to B, from whence it came; and then heaving up the Cloths as before, the blurring Paper and the Printed Sheet from off this Plate: Then again he inketh or blacketh the Plate, and ſo continues on as long as he pleaſeth.

'Tis neceſſary to tell you, that for the conveniency of the Printer, there is at each end of the Preſs *A B*, in ſome place where 'tis not inconvenient two Tables with each a ſheet of Paper, on which he layeth flat one upon another the Cuts or Prints which he draws when he is at *A*, the Print which he receiveth he receiveth on the neareſt Table, and the ſame at the *B* ſide on the other. And moreover he puts on the top of the Preſs, call'd the *Traverſe*, the wet Paper on which he makes the Impreſſion, which I have put in the preceding Figure, as at *C*.

The Printer having done his days Journey, he takes Oyl of *Olive* with either a Ball or piece of Cloth, and enoyleth his Plate, leaſt the black that is in the Engravings ſhould come to dry, chiefly in Summer when 'tis hot weather.

He does alſo the ſame when he has drawn as many Prints as he deſigned, and ſo, that there remain no black, then he wraps it up into Paper till he make uſe of it again for Printing, and keept it in a place not moiſt.

I muſt further tell you, that the ſame Night or next Morning, he hangs on clean Lines, and well ſtretched, the Prints which he drew the day before, which he had laid one upon another on the two Tables, letting them hang till the next Day; then he will lay them ſmooth one upon another when the Paper is dry, and then keep them preſſed down a Day or two. Then handling them a little by dozens, pile them up if he can in ſome Cheſt, that both reviveth and dryeth well the Black.

Things neceſſary to be known, and to be had, in conſequence of the Preſs, as

CLoths to put upon the Plates, and ſometimes under, in Printing them.
Rags and Clouts to wipe away the Black.
The Ball, to ink and black the Plates with.
Lamp Black from *Germany*, to Print with.
The Iron Pot or Veſſel, to boil the Oyl in.
Nut Oyl, and how to boil it two ways.
The Stone and Muller to grind the Black with.
The grinding of the Black.
The Pan and Grid-Iron, to warm the Plate with.
How to wet the Paper.
How to ink or black the Plate.

The Cloths.

THe Cloths muſt be of a Cloth well mill'd and without folds, and fine on both ſides, whereof one muſt be firſt laid on the Plate, then upon that two or three others: Theſe white Cloths muſt have neither Liſts nor Borders, and there muſt be of them of two or three Sizes, according to the ſize of Plates and Paper on which they print. And for as much as paſſing them often under the Roller they are ſqueezd and become hard and wet alſo; they muſt

must be hung up at Night, then in the Morning before they are used, they must be wrung and rubbed, and plated like wisps of Straw to unpress them, as I may say, and make them soft, you must have of them to change, whilst those that are too hard are washed, and the Gum or Size taken from them soaked out of the wet Printed Paper into them.

White Rags of Linnen to be washed.

ONe must be provided with good store of old Linnen Rags, because they use many thereof in Printing.

How to make the Ball.

THe Ball is made of good soft and fine Linnen half worn out, and having enough of such Linnen, you must roll it up like a List, but a great deal closer and harder, for the harder the better, and make thereof like a Painters Muller. Then take good strong Thread doubled several times, and a Bodkin or Naul wherewith to pierce it thro' in several places, and pass the Thread thro' them. You must sow it fast and close, so that being about three Inches thick in Diameter, and about five Inches high, or in length from one end to another. Then you must pare it off at once, and cut it cleverly with a sharp Knife like a roll of Collered Eel, and cut the upper end roundish, like half a Ball, that you may lean and press the hollow of your Hand upon it, to black and ink steadily the Plate without trouble.

The Quality of the Black.

THe best Black wherewith they print Cuts, is called by the *French*, *German Black*, and comes from *Frankford*. Its Goodness and Beauty consists in having an Eye and Black of Velvet, and that

rubbing

rubing it in your Finguers it ſqueezeth like fine Chalk or raw Starch. The Counterfeit has not ſuch a beautiful Black, and inſtead of feeling ſoft to the Fingers, 'tis ruff and ſandy, and weareth out the Plates. 'Tis made of the dregs of burnt Wine.

The Veſſel or Iron Pot to burn the Oyl in.

YOu muſt have an Iron Pot big enough, with its Cover, which muſt be choſen ſo, that it keeps it as cloſe as can be, for that's neceſſary when you put Oyl thereinto, to burn it as I am going to tell you.

The Condition of the Nut Oyl, and how to boil and burn it.

TAke good clear Nut Oyl and put a good quantity thereof in the Iron Pot mentioned before, but upon condition that it want three or four Fingers of being full, and cover it with its Cover. Then kindle a good Fire, and hang the pot over it, and there leave it till it hath boil'd, but be careful it neither run over in begining to boil, nor whilſt 'tis boiling, for that is very dangerous, and enough to ſet the Houſe on Fire. Take therefore care in ſtirring it often with the Tongs or an Iron Ladle, but do it ſo, that being very hot the Fire may take gently in it of it ſelf, or you may put the Fire to it, by throwing into the hot Oyl a lighted piece of Paper, when you ſee the Fire taken in the Oyl, take off the pot and ſet it aſide in a corner of the Chimney, and ſtir always the ſaid Oyl whilſt it burns, either with the Tongs or an Iron Ladle; and this burning muſt laſt at leaſt half an hour or more, to make the firſt Oyl which they call weak, in regard of that which muſt be made afterwards, and which they call ſtrong: And when you would put out this Fire you need but put the cover on your pot, and if it covereth

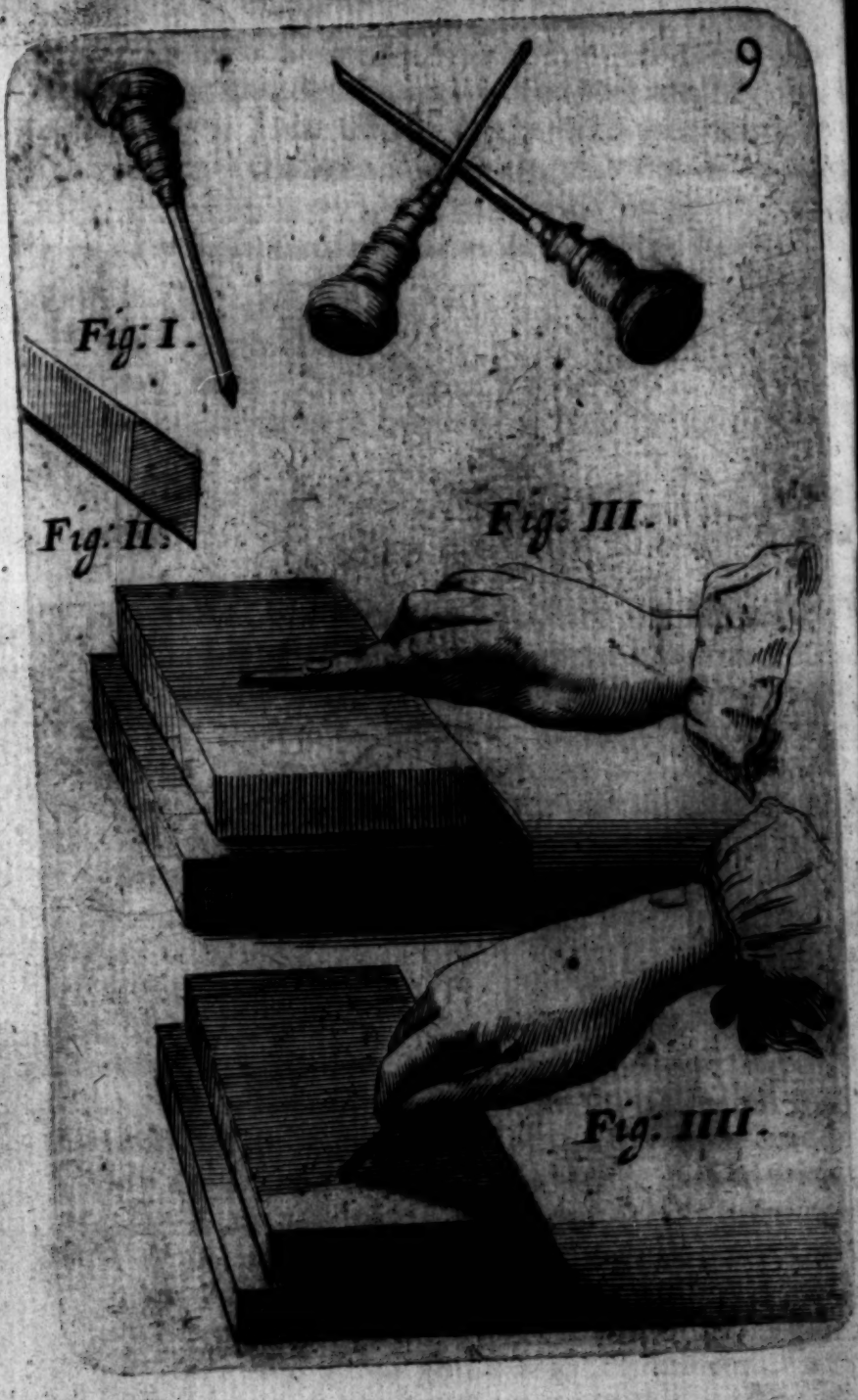
Fig: I.
Fig: II.
Fig: III.
Fig: IIII.

vereth close the Fire will be stifled, if not, do but put about it some Linnen to stop the Air. Then you must let the Oyl cool a little, then empty it out into some Vessel fit to hold it.

This done, put into the same pot again of the same raw Oyl of Nut to make strong Oyl therewith, and do the same as to the weak, excepting, that having set it a flaming into the Chimney corner, you must let it burn much longer, stirring it now and then, till it become very thick and clammy; so that having put some hot drops thereof on a dish or some such thing, and being cool, it become extreme roping and clammy, like a very thick Syrup. Some put into the boiling Oyl either an Onyon or a crust of Bread, to make it less greasie. And in case the Fire should take too violently in the said Iron Pot, throw into it a quarter of a Pint of Nut Oyl not burnt; and if you fear any Accident, instead of boiling it in a Chimney, you may boil it in the Yard.

To grind the Black you must have a great Marble Stone and a good large Muller.

How to grind the Black to Print with.

BEfore you grind your Black, you must cleanse well both your Stone and Muller. Then you take as much Black as you have a mind to Grind, for Instance, taking half a Pound, you must put to it at several times about a quarter of a Pint of the weak Oyl, according to the Black, for some sokes up more, some less; but be careful to put rather less Oyl at a time than too much; wherefore in Grinding you must pour in some now and then to grind the Black as dry as you can: Then having ground it coursly with the said Oyl, remove it to one of the corners of your Marble, or put it on something else, and take now and then a quantity thereof and grind it over again; for one can scarce make it fine

much

much is ground together. Then ſet apart that under ground, and when all is thus ground, put it upon the Marble, and then mix with about the bigneſs of a ſmall Hen's Egg, or thereabouts, of your ſtrong Oyl; when all is well mixt together, put it into an Earthen Porringer well glazed, and cover it with a Paper, to keep out all filth. And thus your Ink is ready for Printing, and to black therewith the Plate.

You muſt alſo know, That for Plates worn out, or which are not engraved deep, there muſt not be ſo much ſtrong Oyl in the Black; all muſt be done with diſcretion.

Above all, the Printer muſt be careful to Print with good Black, and to grind it well; for if the Black be either courſe or ill ground, beſides that the Printing therewith is naught, it both weareth out and ſpoileth the Plates. As alſo that the Oyls be well ground and made up into a Syrup, becauſe if thin the Black remains behind in the Engravings, and none but the blacker Oyl marketh on the Paper, which is good for nothing for ſeveral Reaſons: But the Black being well delay'd with the good Oyls, 'tis ſo incorporated with them, and they with it, that they muſt of neceſſity ſtick both on the Paper.

The Pan to hold Charcoal with its Gridiron over it.

YOu muſt have an Iron Pan big enough, by reaſon that ſome Plates are large: Next, a kind of Gridiron to lay over the ſaid Pan, to uphold the Plate, when warmed to be blackned, and to give Air to the Fire of the Pan, leſt it be ſmothered and alſo for the conveniency of ſmall Plates.

The Fire in the Pan muſt not be great, but rather midling, and covered over with a few hot Aſhes.

How

How to wet the Paper.

TO wet the Paper you muſt have a great flat kind of Tub half filled with clean Water, and moreover two ſtrong Boards or Planks with Barrs on behind, of the bigneſs and ſize of a Sheet of the ſaid *Paper* ſpread open. One of the ſaid Boards muſt be barr'd behind, that ſo the *Paper* lying upon it, you may thruſt your Fingers between the Board and the Plate it lyes on, both to take it up, or to lay it eaſily in another place.

You take up then with both your Hands five or ſix ſheets of the *Paper* thus ſpread, by the two ſides, and draw them thro' the ſaid Water twice or thrice, according as they are more or leſs gummed, from one ſide to the other very even, to prevent all foldings: Then lay them thus together very even on one of your Boards on the ſmooth ſide; and do the like with all the *Paper* you wet, lying thus wet parcel upon parcel on this firſt; then lay the ſmooth ſide of your other Board on the ſaid *Paper*, ſo that it be all encloſed between the two Boards. Then again lay upon the uppermoſt Board ſomething very heavy to leaden it, and by this means make the Water ſoak into the ſaid *Paper*, and drain away what is ſuperfluous. Leave it thus layden till you come to print it.

The ſaid *Paper* being thus wetted over Night, is ready the next Morning, and when there is more wetted than could be *Printed*, that which remains muſt be put together with the next to be wetted over Night, and the next Morning take of it the firſt: Strong and well gum'd *Paper* muſt be more wet, and the weaker and leſs gum'd leſs.

How to Ink the Plate, to make it pass afterwards on the said Table of the Press, between the two Rollers for Printing.

HAving your Plate wholly Engraved, filed and fitted ready to Print with, you must lay on the wrong side on the Gridiron or Pan where the Fire is, making it pretty warm. Then with a clean Rag you must take it by one of the Corners and lay it flat on the Table very steady; and taking the Ball which you made before, and with the Black which you prepared, you carry it to your Plate, and there sliding, pressing, dappling in sundry ways the said Ball, over all the Engraved Surface of the Plate, you make the Black enter and pierce into all the Strokes: And if you ink with a new Ball, you must take three or four times more Black than if the said Ball (after much working) had been filled and soaked before.

Remember always to keep your Ball in a cleanly place, that neither dust nor filth may stick to it. For in blacking that would make scores upon your Plate. As also when after Printing and Discontinuation, it happens that the said Ball becomes hard by reason of the black dryed upon it, you must cut off some Rolles, and do as you did before.

Having then made the Black enter into all the Engravings of your Plate, you must take another Rag, besides that which you hold in your Hand, and wipe off therewith lightly the courfest of the black which is on the Plate, and even that which may be both about it, and that place of the Table where you inked it, so that there remain no black; then laying aside the Rag, and posing your Plate upon the Table, you must wipe well the hollow or palm of your Hand, with the clean Rag in your other Hand, chiefly the fleshly side under the little Finger. Then you pass boldly in wiping and sliding

ing the ſaid palm of your Hand, and chiefly the fleſhly part over the Plate, ſometimes longways, then croſs ways, wiping afterwards the ſaid hollow of the Hand with the clean Rag which you hold in the other, wherewith you hold ſteady the Plate againſt the edge of the Table, as you paſs the flat of your Hand over it. Now, by this means you take away the remnant of the Black which is ſuperfluous, there remaining but what is neceſſary, which is in the Engravings. Seeing then that there is neither Black nor Spot on the Plate, in the places where there is nothing engraved, and which conſequently ought to be as white as the Margin of of the Paper, when the ſheet is Printed; you muſt wipe the edges and thickneſs of the ſaid Plate, to the end that all may come out clear on the Paper, and having done this, you muſt lay again your Plate on the Gridiron a little, and when 'tis become a little warm, you muſt take it up on your Hands, having wiped them well firſt.

And take care not to touch it but only on the backſide and the edges, and the corners on the engraved ſide, that you may not ſully it. Then lay it on the Table of your Preſs, as I told you in fitting up the Preſs.

It remains to tell you, that you muſt be careful not to have that Hand ſweatty which wipes the Black, as alſo that the Clout or Rag wherewith you wipe of the courſer may ſerve ſeveral times, provided it grow not hard; and as for the other which ſerves to wipe the palm of the Hand, there are occaſions where one muſt change it much oftner, and have clean ones now and then. Moreover you muſt have one ty'd before you like an Apron, to wipe your Fingers when you take the wet Paper to lay it over the Plate, and after it is Printed to take it off from it.

There are many other things to be obſerved which

would be too long to rehearſe; but the Judgment of thoſe that will read theſe Papers, and thoſe that would practice this Art may ſupply.

Only I will tell you, that there are certain neceſſities, where they lay Cloaths firſt of all on the Table of the Preſs, and over them a bluring Paper, and then the Paper, Paſteboard, Satin, or other thing you Print upon; and turn the Engraved ſide of the Plate downwards, then two or three Cloths over it to prevent the bending of the Plate, as alſo that it ſpoil not the Roller when they turn the Handle, and all paſs and print as before. This is done ſo when neceſſity requires it, as in the Impreſſion of Satin Prints, which were the occaſion of a Fancy of mine to do what I ſhall tell you afterwards.

One may alſo Print Plates with many other ſorts of Colours well ground and delay'd, as well with the ſame Oyl of this Black, for brown Colours, and for light ones with other thick Oyls purify'd.

And foraſmuch as I found once in Printing, that there was difficulty to make good thick Black ſtick on either Gold or Silver apply'd on the Paper, Paſteboard, *&c.* I have thought that the ſame might happen to others, and to prevent it, 'tis but mixing with a portion of Black as big as an Egg, half a ſpoonful of Oxes Gall delay'd in a little Vinegar and common Salt, and remember not to delay this Black with the Gall, but as you ſpend it, as once in two hours, otherwiſe 'tis ſpoil'd.

Now as concerning the Notion which came into my Head by occaſion of the Sattin Prints of ſeveral Colours. That put me in mind to do quite the contrary to thoſe who Print in Water Colours, commonly call'd *Waſhing of Prints.* For, whereas they lay the Colours on the Printing with Ink, I bethought my ſelf to have that impreſſion on Colours.

How to Print Cuts upon Colours.

Suppoſe that you have a Plate ready Engraved of a Picture that you would have cloathed of two or three Colours. For Inſtance, with a grey Hat, the Hair brown, a red Cloak, the Coat and Breeches of a Colour, the Stockings of another, &c.

Firſt, you muſt have another Plate of Copper, fitted and filed of the ſame ſize as that, ſo that being laid upon it, it fits, and is on all ſides ſuitable to it, and having verniſhed it with a hard white Verniſh, as before; and taking an impreſſion of the Engraved juſt newly drawn on a Paſtboard, or very thick Paper, and moiſtned a little, and put immediately the Plate Verniſhed white on the ſaid Impreſſion, very exactly where the Engraved Plate hath made its Impreſſion together, on two Cloths laid ſmoothly on the Table of the Preſs, then two or three other Cloths more over the ſaid Impreſſion and Plate, and make all theſe together paſs between the Rollers; then you ſhall ſee that the Figure firſt imprinted on the Paſteboard, will have ſcored out its Figure on the verniſhed Plate, by way of a Counter-proof, whereof hereafter.

Then you muſt Engrave on the varniſhed Plate with a point very ſmall the outward Lines of the Hat, Cloak, Coat, and other Particulars, and ſink them a little with the *Aqua fortis*. Then you muſt take off the Verniſh and draw Prints thereof on very white Paſteboard, or thick Paper allumed, or ſuch other things ſomething thick, after you have moiſtned them a little, by laying them in a Celler a Night or ſo, or between wet Papers. Theſe out Lines being printed and dry, you muſt lay on Red on all that ſpace that comprehends the Cloak, and waſh with a grey Colour all the ſpace for the Hat, and ſo of the reſt. This done you muſt put the ſaid Paſteboard thus colpured, as I ſaid, to make

moiſt. Then you muſt take the firſt engraved Plate, having inked it, you muſt put the ſaid Paſteboards coloured on the Cloths, and the ſaid Engraved Plate of the ſize it ought exactly in the Inking, which the Plate of the outward Lines only hath made, then two or three Cloaths over it, and make all paſs through the Rollers. This done, you will ſee that the Plate will have Imprinted on the ſaid Colours, in making them far more ſmoother and fairer than the ordinary way of waſhing Prints.

Before I cloſe, I will tell you what the Printers call a Proof and Counterproof. Proof is the firſt, ſecond or third Print which they draw of a Plate that has not yet Printed, or of thoſe which they ſet a going. The Counterproof is made with the ſaid Proof thus, *viz.* That having drawn the Proof put it ſmooth and all wet the wrong ſide on the the Plate which made it; then they put upon that Proof a Sheet of Paper wetted, then again the Blurring Paper over it, and laſtly the Cloaths. Then they paſs all theſe together between the Rollers, and having taken up the ſaid Sheet, they find that the Proof has made a Counterproof on the ſaid Sheet of Paper. This is uſually done to ſee better how to correct, becauſe the ſaid Counterproof is according to the Draught, *viz.* turn'd the ſame ſide.

When it falls out that the Black is dry'd in the Engravings of the Plate, it muſt be boil'd with Aſhes, or lay the Plate the wrong ſide outwards on two ſmall Andirons, as when they boil the hard Verniſh, and put upon the Engraved ſide of the Plate a Finger thick of fine ſifted Aſhes delay'd with Water, then with any ſort of Paper or lighted Straw make a Fire under the ſaid Plate, in heating it all over, ſo that the ſaid wet Aſhes boil; and having thus boil'd the ſaid Aſhes, it will have drawn and delay'd the Black in the Engravings. Then you muſt throw Water on the ſaid Plate, till none

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of the Aſhes remain, taking care in the wiping thereof that none remain there, for that would make ſcratches therein.

The Printer is ſometimes forced to allum his Paper, and to this end he diſſolves Alum in Water on the Fire, then ſteeps his Paper therein inſtead of common Water.

Monſieur Perrier's *New Invention.*

SOmetimes ſince Monſieur *Perrier*, a *Burgundian*, one of the beſt Painters of the Times, ſhew'd publickly on gray Paper, ſomething brown, Figures whoſe outward Lines and Etchings were printed with Black, and the Lights with White, all after the way of *Camayena*, which was a thing that ſeem'd not only new, but beautiful alſo withal. I that had a mind to find out the way how he did it; and having well conſidered upon it, methinks one muſt have two Plates exactly of the ſame ſize, and exactly fitted to each other. On the one muſt be wholy Engraved what you deſire, then Print it on Paſteboard or thick Paper with Black, as I have ſaid before for Printing Colours; and having Varniſhed the other Plate, as I ſaid before, and laying the Varniſhed ſide in the place, and the Impreſſion which the Engraved Plate has made, by imprinting on the ſaid Paſteboard or Paper, and paſs it afterwards; as in Printing, between the Rollers, the ſaid Print will have made its Counterproof on the ſaid Varniſhed Plate. After which muſt be Engraved thereupon the Lights, and make them deeply Engraved by the *Aqua fortis*. The ſame thing may be alſo better done by Graving with the Engraver.

Now this done, the greateſt difficulty I find in this is, to find both Paper and Oyl which makes not the White Yellowiſh nor Brown. Hitherto the beſt is to get Oyl of Nut made very White, and extract

without

moiſt. Then you muſt take the firſt engraved Plate, having inked it, you muſt put the ſaid Paſteboards coloured on the Cloths, and the ſaid Engraved Plate of the ſize it ought exactly in the Inking, which the Plate of the outward Lines only hath made, then two or three Cloaths over it, and make all paſs through the Rollers. This done, you will ſee that the Plate will have Imprinted on the ſaid Colours, in making them far more ſmoother and fairer than the ordinary way of waſhing Prints.

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of the Ashes remain, taking care in the wiping thereof that none remain there, for that would make scratches therein.

The Printer is sometimes forced to allum his Paper, and to this end he dissolves Alum in Water on the Fire, then steeps his Paper therein instead of common Water.

Monsieur Perrier's *New Invention.*

SOmetimes since Monsieur *Perrier*, a *Burgundian*, one of the best Painters of the Times, shew'd publickly on gray Paper, something brown, Figures whose outward Lines and Etchings were printed with Black, and the Lights with White, all after the way of *Camayena*, which was a thing that seem'd not only new, but beautiful also withal. I that had a mind to find out the way how he did it, and having well considered upon it, methinks one must have two Plates exactly of the same size, and exactly fitted to each other. On the one must be wholy Engraved what you desire, then Print it on Pasteboard or thick Paper with Black, as I have said before for Printing Colours; and having Varnished the other Plate, as I said before, and laying the Varnished side in the place, and the Impression which the Engraved Plate has made, by imprinting on the said Pasteboard or Paper, and pass it afterwards, as in Printing, between the Rollers, the said Print will have made its Counterproof on the said Varnished Plate. After which must be Engraved thereupon the Lights, and make them deeply Engraved by the *Aqua fortis*. The same thing may be also better done by Graving with the Engraver.

Now this done, the greatest difficulty I find in this is, to find both Paper and Oyl which makes not the White Yellowish nor Brown. Hitherto the best is to get Oyl of Nut made very White, and extract

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without Fire; then to put it into two Veſſels of Lead, and leave in the Sun till it grows thick as the weak Oyl mentioned before; and for the ſtrongeſt you muſt leave one of the ſaid Veſſels much longer expos'd to the Sun.

Then again you muſt get fine white Lead, dry it and grind it with the ſaid Oyl very dry, and afterwards incorporate it well with the thick Oyl, as you do the Black. Then having Printed the firſt Plate, all Engraved, with Black or other Colour, on the ſaid Paſtebord or thick Paper, you muſt let the Impreſſion dry well ten or twelve Days, and then, having made the ſaid Papers or Paſtebord very moiſt, you muſt fill up the Plate of the Lights with the ſaid White, as you do the others with Black, to Print with; and having wip'd it well, lay it on the Printed Paſtebord or thick Paper, ſo that it be exactly fitted to the mark or ſizing made by the firſt Plate into the ſaid Paper or Pafteboard, being careful not to put it the wrong way. Being thus fitted, and a little hot, paſs it between the two Rollers with the Cloths both over and under it, as I ſaid of the Impreſſion with Colours.

For a need, one might Print with the ſaid Oyls white *Maſſicot*, and other light Colours, inſtead of white.

Since I writ the Chapter concerniug the hard Varniſh, I am told, that in *Italy* they make uſe of *Linſeed* Oyl inſtead of *Nut* Oyl, to make their hard Varniſh, and that the beſt Varniſh is made at *Venice* and *Florence*, and is ſold at the *Drugſters*.

FINIS.